Southern Midlands Council Former Municipal Works Depot Detailed Site Investigation

REPORT FOR BZOWY ARCHITECTURE

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ABBREVIATIONS

ACRONYM	DEFINITION
AC	Asbestos Cement
ACM	Asbestos Containing Material
AHD	Australian Height Datum
ALS	Analytical Laboratory Services
As	Arsenic
AST	Above-ground Storage Tank
Ba	Barium
BaP	Benzo[a]pyrene
BDR	Building Demolition Rubble
Be	Beryllium
Bo	Boron
BTEXN	Volatile monocyclic aromatic hydrocarbons [benzene (B), toluene (T), ethyl-benzene (E), o, m and p xylenes (X) and naphthalene (N); commonly referred to as BTEXN
Bzowy	Bzowy Architecture
Cd	Cadmium
Co	Cobalt
COC	Chain of Custody
CoPC	Contaminants of Potential Concern
Council	Southern Midlands Council
COVA	COVA Thinking Pty Ltd (formerly SEMF Pty Ltd)
Cr	Chromium
Cu	Copper
DA	Development Application
DQO	Data Quality Objectives
DSI	Detailed Site Investigation
EIL	Ecological Investigation Level
EPA	Environment Protection Authority, Tasmania
ESL	Ecological Screening Level
Eurofins	Eurofins Laboratory
Hg	Mercury

ACRONYM	DEFINITION
HIL	Health Investigation Level
HSL	Health Screening Level
IBC	Intermediate Bulk Container
LOR	Laboratory Limit of Reporting
Mn	Manganese
Mo	Molybdenum
NATA	National Association of Testing Authorities
Ni	Nickel
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
Pb	Lead
PID	Photo-ionisation Detector
QA/QC	Quality Assurance / Quality Control
RPD	Relative Percentage Differences
Se	Selenium
SEMF	SEMF Pty Ltd (now COVA)
SHR	Site History Report
SMC	Southern Midlands Council
SWS	Southern Waste Solutions
TPH / TRH	Total Petroleum Hydrocarbons / Total Recoverable Hydrocarbons
UPSS	Underground petroleum storage system
V	Vanadium
WCC	William C. Cromer Pty Ltd
Zn	Zinc

1. EXECUTIVE SUMMARY

Southern Midland's Council (SMC) is looking to redevelop part of the former Oatlands Works Depot (18 Church Street), the Oatlands Community Centre (68 High Street) and a building and land at 70 High Street, which combined are referred to as the 'Property'. SEMF Pty Ltd (SEMF, now COVA Thinking Pty Ltd, COVA) was engaged by Bzowy Architecture to complete a Detailed Site Investigation (DSI) to assess human health and environmental impact risks, prior to redevelopment of part of the Property. The boundary of the DSI works is shown on Figure 2 (Appendix A) and represents the area referred to as the 'Site'.

The works undertaken included:

- Site history investigation including development of a Sampling Analysis and Quality Plan (SAQP) to address identified information gaps;
- Decommissioning of an underground petroleum storage system (UPSS) by removal;
- Soil investigations (grid and target locations);
- Soil contamination delineation and remedial works (numerous locations);
- Ground penetrating radar survey (targeted); and
- Groundwater investigations (qualitative and quantitative).

Contamination that was identified on Site included:

- Hydrocarbons in soil – essentially diesel contamination;
- Lead (Pb) in soil – associated with sooty wastes from historical blacksmith activities; and
- Asbestos piping - buried.

Site works have removed:

- Primary source of contamination (i.e. UPSS);
- All encountered asbestos piping;
- Identified areas of sooty and Pb-impacted blacksmith wastes; and
- Hydrocarbon (diesel) soil contamination.

Samples of soils that remain on Site show:

- No exceedances of adopted human health criteria for commercial / industrial land use, relevant to the proposed swimming pool, access and car parking areas.
- No exceedances of adopted human health criteria for recreational land use, relevant to the outdoor park area for the swimming pool (north of the existing right of way), and park area associated with the Community Centre lot (south of the right of way, within the existing 68 High Street title).
- Residual contamination on Site includes:
    - Two locations which reported total recoverable hydrocarbons (TRH) F2 fractions concentrations in excess of the adopted ecological criteria for commercial / industrial land use; and

  - Four locations which reported zinc (Zn) concentrations in excess of the calculated ecological criteria for commercial / industrial land use.

- Residual contamination within the proposed park areas includes:
  - One location which reported a TRH F3 fractions concentration equal to the adopted ecological criteria for recreational / open space land use; and
  - Three locations which reported Zn concentrations in excess of the calculated ecological criteria for recreational / open space land use.

The DSI demonstrated that the concentrations of contaminants of potential concern (CoPC) in samples of soil that remain on Site, are not considered to represent an unacceptable risk to human health or ecological values during:

- On-going commercial use of the Site (i.e. proposed use as an aquatic centre);
- Outdoor recreational use of the Site within the proposed park / open space areas; or
- Excavation works across the Site.

Similarly, ecological and human health risks posed by groundwater beneath the Property are considered to be low.

Extensive remedial excavation works have taken place to remove identified contamination. It is however possible that:

- small pockets of residual hydrocarbon contamination;
- segments of AC piping; and
- areas of sooty and Pb-impacted blacksmith wastes

could be encountered beyond or between investigated locations. Given the density of remedial works, trenching and investigations, the likelihood of encountering any of these is considered to be low. Nonetheless, to address the low residual risk, it is recommended that any Site soil disturbance (i.e. earthworks of any sort) be managed to minimise risks, via a specific management plan.

2. INTRODUCTION

2.1 BACKGROUND

In August 2012, SEMF Pty Ltd (SEMF, now COVA Thinking Pty Ltd, COVA) was engaged by Bzowy Architecture to undertake a site history investigation of Southern Midlands Council's (SMC's) operational Oatlands Works Depot (18 Church Street), the Oatlands Community Centre (68 High Street) and a building and land at 70 High Street. Land titles for each address are listed in Table 2 and shown on Figure 1 (Appendix A), and, combined, are hereafter referred to as the 'Property'. The Site History Report[1] (SHR) included development of a field sampling plan to address gaps in information around potential site contamination. The intention at that time was to redevelop part of the Property as an aquatic and recreation centre.

In May 2017, SEMF was engaged by Bzowy Architecture to review the SHR (SEMF, June 2013) to update the information for the intervening years (2012 to 2017) and update the report to meet current regulatory requirements, prior to submitting the revised Development Application (DA). The revised DA relates to redevelopment of part of the Property to an aquatic centre. The revised SHR report[2] also included development of a Sampling Analysis and Quality Plan (SAQP) to address sampling requirements to address information gaps outlined in the SHR. The boundary of the investigation works is shown on Figure 2 (Appendix A) and represents the area referred to as the 'Site'. The proposed land use plan for the Property is provided in Appendix B, and the uses are shown on Figure 2.

In September 2017, SEMF was engaged by Bzowy Architecture to implement the SAQP (SEMF, August 2017) and compile the findings into a Detailed Site Investigation (DSI) Report (this report). During implementation of the SAQP several areas of contamination were encountered; remedial works and validation sampling were undertaken, and these are also documented within this DSI.

2.2 OBJECTIVE

The objective of the DSI (this report) is to assess human health and environmental impact risks within the Site area, prior to redevelopment of the Property.

It is intended that the DSI will provide sufficient information to demonstrate to an acceptable level of certainty, that the Site is suitable for the proposed future uses (Figure 2, Appendix A) namely:

- Commercial use – swimming pool, access and car parking areas; and
- Recreational use – outdoor park area for the swimming pool (north of the existing right of way), and park area associated with the Community Centre lot (south of the right of way, within the existing 68 High Street title).

2.3 SCOPE OF WORKS

The scope of work for the DSI included:

- Soil investigations:
    - Excavating 16 grid-based test pits (TP1-TP16) across the Property and collecting soil samples from multiple depths (note, target location T10 was investigated by grid location TP12).

[1] *Southern Midlands Council, 18 Church St. Oatlands – SMC Works Depot, Site History Report* (SEMF, June 2013).
[2] *Southern Midlands Council, Municipal Works Depot, Oatlands – Site History Report* and Sampling Analysis and Quality Plan (SHR & SAQP, 2017).

- Sampling at 10 target locations (T1-T6, T11, T13-T15) and collecting soil samples from multiple depths. Target locations included:
    - T1: former above ground fuel storage tank (AST);
    - T2: former underground fuel storage tank (UPSS1 – decommissioned, no records);
    - T3: disused diesel UPSS2;
    - T4: vehicle wash bay;
    - T5: truck service pit and truck service shed;
    - T6: oil store and former pesticide store;
    - T10: pesticide store (investigated by grid location TP12);
    - T11: 1993 diesel spill path;
    - T13: possible UPSS3 (based on interpretation of Worksafe Tasmania (WST) records);
    - T14: main workshop; and
    - T15: former workshop building footprint.
- Visually checking for presence / absence of potential asbestos containing materials (ACM).

- Ground Penetrating Radar (GPR) survey in the vicinity of target location T13 (potential presence of UPSS (UPSS3)).
- Sampling and testing of potential ACM fragments identified at target location T14.
- Contamination delineation and remedial works:
    - Additional excavations and validation sampling at 6 locations. 4 phases of remedial works were associated with hydrocarbon (diesel) contamination, and 2 phases of work were associated with metals' contaminated sooty wastes:

      Hydrocarbons remediation:
        - Part 1 – target location T1 (former AST);
        - Part 2 – grid location TP10 (and possible extension of T1);
        - Part 3 –along the sewer line trench (possible extension of T1);
        - Part 4 – Trench 6 (possible extension of T1); and

      Metals remediation:
        - Part 1 – T14-03 lead contamination – small remedial pit excavated;
        - Part 2 – TP17-01 lead contamination – sooty wastes chased out and excavated.

  - Excavating 4 trenches (Trenches 1 to 4) to confirm the absence of hydrocarbon contamination in areas not previously investigated (i.e. between grid sampling locations) and collecting samples from multiple depths.
  - Investigating imported fill (including possible building demolition rubble (BDR) in the southern part of the Site, via trenching and sampling.
  - Excavating 2 trenches (Trenches 5 and 6), in the vicinity of T1-AST hydrocarbon remedial excavation and within the fill area in the southern part of the Site, and collecting samples.
  - Stockpiling of excavated waste soils on Site.
  - Sampling and classification of stockpiled waste soils prior to off-site disposal.
  - Obtaining Environment Protection Authority (EPA) approval for disposal of any Level 2 or Level 3 contaminated soils.
  - Validation sampling of stockpile footprints.
- Groundwater investigations:
  - Qualitative groundwater risk assessment.
  - Drilling, logging, installing and sampling of 1 groundwater well (MW1) down-gradient (north) of the Part 2, hydrocarbon remedial excavation.
- Collecting additional samples for quality assurance / quality control (QA/QC) during each phase of work.
- Testing samples for previously identified contaminants of potential concern (CoPCs).
- Reviewing analytical results against relevant guideline criteria, identifying exceedances of nominated assessment criteria and associated remediation requirements.
- Documenting works and results from the above into a DSI report (this report).

Investigation works were supported by SMC, who organised the following:

- Building demolition, concrete slab removal and disposal.
- UPSS decommissioning by removal at target location T3 (validation sampling and completion of EPA UPSS decommissioning form by COVA).
- Excavator, operator and offsider.
- Plastics, dog trailers and skip bins, etc. for stockpiling of excavated soils.
- Disposal of excavated soils to approved landfills (after classification results had been provided, and relevant EPA and landfill approvals obtained for any contaminated soils).
- Disposal of water / diesel mix from UPSS2 (target location T3).

2.3.1 INVESTIGATION DETAILS

Details of the investigation works are provided in Table 1.

Table 1: Investigation Work Details

ITEM	DETAILS

Soil Sampling Dates:	• Grid test pits
	  ○ TP1-TP16 (including T10 at TP12) – 31 January 2018
	  ○ TP17-TP19 – 1 November 2018
	• Target locations:
	  ○ T1-T6, T11 & T13-T15 – 1 February to 2 February 2018
	  ○ UPSS decommissioning (T3) – 2 February 2018
	  ○ MW1: 5 July 2018 (W. C. Cromer (WCC) – report in Appendix L)
	• Remedial excavation and validation sampling at:
	  ○ T1 (diesel AST spill) – 20 February 2018
	  ○ Target location T14-03 (T14-03-V01) (lead impact)– 28 May 2018
	  ○ Grid test pit TP10-02 (extended diesel remediation) – 30-31 May 2018
	  ○ Sewer Line Trench (extended diesel remediation) – 12 September 2018
	  ○ Grid test pit TP17-01 (lead impact) – 18 December 2018
	• Fill and ACM delineation with 4 trenches (A to D) (Fill 1-8) – 31 May 2018
	• Trenches (closing off diesel impact extents):
	  ○ Trenches 1 to 4 – 21 June 2018
	  ○ Trenches 5 and 6 – 12 September 2018
	• Groundwater well installation (MW1) – 5 July 2018
	• Stockpiles sampling for classification and disposal:
	  ○ Waste soils and waste water from UPSS decommissioning – 2 February 2018
	  ○ Waste soils from part 1 diesel remediation excavations at target location T1 – 20 February 2018
	  ○ Waste soils from lead-impacted location T14-03 – 28 May 2018
	  ○ Excavated ACM-impacted fill – 31 May 2018
	  ○ Waste soils from part 2 diesel remedial works beyond grid test pit TP10 – 1 June 2018
	  ○ Waste soils from part 3 diesel remedial excavation at Trench 6 – 12 September 2018
	  ○ Waste soils from lead-impacted sooty wastes at TP17-01 – 18 December 2018
	• Stockpile bioremediation progress sampling – 12 September 2018
	• Removed waste soil stockpiles footprints validation:
	  ○ Stockpiles A & B validation – 28 May 2018
	  ○ Stockpile C validation – 1 November 2018
	  ○ Stockpile D validation – 1 November 2018
	  ○ Stockpile from Trench 6 validation – 1 November 2018
	  ○ Bioremediated Stockpile E validation – 1 November 2018

ITEM	DETAILS
Groundwater Sampling Dates:	• MW1 indicative grab sample – 5 July 2018 • MW1 low-flow sample – 12 July 2018 The work was preceded by a desktop qualitative groundwater risk assessment by WCC (Appendix K).
GPR Survey Date:	6 February 2018
ACM Fragments Sampling Date:	20 February 2018
Assessment Team:	• Fiona Keserue-Ponte, Principal Environmental Scientist (COVA) – site supervision, soil, surface water and asbestos sampling. • William C. Cromer, Principal Hydrogeologist (William C Cromer Pty Ltd, (WCC) – qualitative groundwater risk assessment, supervision of groundwater well installation and sampling. • KMR Drilling – groundwater well drilling and installation (refer to Appendix L). • Justin Barnett (AJ Water and Leak Detection) – GPR survey. • Brian Chatters – SMC excavator operator • Jack Lyall and other Council staff – underground services determination
Report Compilation:	Carly Clark, Principal Environmental Scientist, CEnvP SC 40054[3] – COVA Fiona Keserue-Ponte, Principal Environmental Scientist, CEnvP SC 41034[3] – COVA
Location:	The boundary of the Site investigated by this DSI is defined in Section 2.4, and shown in Figure 2 (Appendix A); it includes the land in Oatlands, Tasmania, 7120 at the following street addresses: • 18 Church Street (excluding the existing public garden on High Street); • The northern portion of 68 High Street (i.e. excluding the existing fenced Community Centre land); • 70 High Street, and • The eastern portion of the right-of-way from Church Street, which runs between these lots.

2.4 BOUNDARY OF THE ASSESSMENT

The scope of the assessment work carried out by COVA was limited to the items listed in Section 2.3.

The physical boundary of the assessment was limited to the area shown in Figure 2 (Appendix A), totalling approximately 6,000 m^2, and included:

- the proposed future aquatic centre; and

[3] *Certified Environmental Practitioner, Site Contamination Specialist* under Environmental Institute of Australia and New Zealand.

- potential open space / park area north of the Community Centre.

2.5 LIMITATIONS

Limitations of the investigation included:

- Grid sampling across the Site via test pits, at the density required in Table E1 of AS 4482.1-2005[4] to a maximum depth of either refusal or bedrock.
- Judgemental sampling at previously-identified areas of potential contamination (SHR target locations).
- Remediation (via excavation) and validation of areas where soil contamination was identified.
- Installation and sampling of one groundwater well.
- Asbestos in soil sampling was limited to visible areas of fill along the south of the Site, where visible BDR was observed.
- No soil vapour, sub-slab or indoor vapour assessments or investigation into the potential for building contaminants such as asbestos or lead-based paints have been undertaken for any remaining buildings; most buildings had been demolished and removed at the time of COVA's investigations, with the exception of the C. T. Fish building, south-east corner of the Site, a small wooden shed, north of the C. T. Fish building.
- No investigations within the Community Centre fenced boundary (southern half of 68 High Street), which was excluded from the Site, or beneath the C. T. Fish building or small wooden shed (southern end of 70 High Street).

The findings of this report are based on the results of sampling at the time and locations of sampling; the results cannot assess what might have occurred subsequent to our sampling or in areas which were not investigated.

2.6 SITE OWNER AND CONTRACTOR INFORMATION

The Site is owned by:

Southern Midland Council
71 High Street
Oatlands Tasmania 7120
Contact: Mr Andrew Benson
Telephone: (03) 6254 5000
Email: mail@southernmidlands.tas.gov.au

Soil sampling investigations and report preparation were conducted by:

COVA Thinking Pty Ltd
Unit 5, 40 Molle Street
HOBART Tasmania 7000
Telephone: (03) 6212 4400

[4] *AS 4482.1-2005, Guide to the sampling and investigation of potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds, Standards Australia, 2005.*

Email: cova@covathinking.com

Groundwater investigations and report preparation were conducted by:

William C Cromer Pty Ltd
74A Channel Highway
Hobart Tasmania 7000
Contact: Mr Bill Cromer
Mobile: 0408 122 127
Email: billcromer@bigpond.com

GPR survey conducted by:

AJ Water and Leak Detection
Bo Box 66
Kings Meadows Tasmania 7249
Contact: Mr Justin Barnett
Mobile: 0457 710 684
Email: admin@ajwater.com.au

Excavation works were conducted by:

Southern Midlands Council (details above)

3. PROPERTY INFORMATION

3.1 PROPERTY IDENTIFICATION

3.1.1 PROPERTY DETAILS

Property details are provided in Table 2. The buildings layout (i.e. prior to demolition) are shown on Figure 3 (Appendix A).

Table 2: Property Details

ITEM	DETAILS
Property Addresses:	The investigation spanned part or all of three adjacent addresses (refer to Figure 1, Appendix A): • 18 Church Street, Oatlands, Tasmania, 7120 • 68 High Street, Oatlands, Tasmania, 7120 • 70 High Street, Oatlands, Tasmania, 7120
Site: Title References (refer to Figures 1 and 2, Appendix A):	18 Church Street: • CT-22710/1 • CT-46931/1 • Northern portion of CT-148207/1 Northern half of 68 High Street: • CT-148205/1 70 High Street: • CT-41274/3 Eastern half of the Right-of-Way from Church Street
Zoning:	Under the *Southern Midlands Interim Planning Scheme 2015*: • The Property is zoned '*General Business*[5]'. • The Property is surrounded by '*General Residential*', '*Community Purpose*' and '*Utilities*' zonings.
Previous Land Uses:	18 Church Street: • CT-22710/1: Undeveloped (prior to 1970s), then SMC Municipal Works Depot. • CT-46931/1: Undeveloped (prior to mid-1970s), then SMC Municipal Works Depot (from 1974-1985). • CT-148205/1 (part): Likely to have been residential (prior to 1971), then SMC Municipal Works Depot (since pre-1971). • CT-148207/1 (part): Workshop (prior to mid-1970s), then public open space lawn/garden fronting High Street (since pre-1974). 68 High Street: • CT-148205/1 (part): Unknown – likely to have been residential (prior to 1971); • Anecdotally, the land may have been used by a blacksmith.

[5] Taken to be equivalent to 'Commercial / Industrial' land use in the *National Environment Protection (Assessment of Site Contamination) Measure*, 1999, as amended May 2013 (ASC NEPM).

ITEM	DETAILS
	70 High Street: • CT-41274/3: Drapery shop (burnt 1979); the new building has been used as a video hire shop, restaurant, antiques shop and art gallery.
Current Land Uses:	18 Church Street: • Vacant, buildings removed 2018; • Southern portion of CT-148207/1, outside of the investigation area, is currently used a small public park. 68 High Street: • Northern half is vacant, buildings removed 2018; • Southern half is currently occupied by the Oatlands Community Centre (since pre-1993). 70 High Street: • Northern portion is cleared with one remaining shed; • A building remains on the south of the lot; it is hired out as a film set. Right-of-Way: • Currently provides access to the rear of properties along High Street, and western entrance to the Site.
Proposed Land Uses and Zoning:	Refer to Appendix B for the proposed land use site plan, and Figure 2 (Appendix A). It is understood the majority of the land will be rezoned to Community Purpose, including the following areas: • Aquatic Centre, • Park area for Aquatic Centre outdoor use, • Existing Community Centre – to remain, and • Public park area at the rear of the Community Centre. The building and small timber shed at 70 High Street will be demolished to make room for the Aquatic Centre redevelopment, and the existing small public park between 68 and 70 High Street will remain.

3.2 REGIONAL SETTING

3.2.1 LOCALITY AND SURROUNDING LAND USE

The Property is located within the centre of Oatlands, fronting High Street (also known as Main Road), as shown on Figure 1, (Appendix A). Oatlands is situated approximately 82 km north of Hobart.

Neighbouring land uses include:

- South Parade then residential housing to the north-west.
- Residential housing, Masonic Hall and commercial uses to the north-east.
- High Street then Council Offices to the south-east.

- Residential housing and commercial premises (including a fire station) to the south-west.

3.2.2 ZONING

A copy of the Land Information System of Tasmania (LIST) zoning map and legend is provided in Appendix C. The Property is zoned '*General Business'* under the *Southern Midlands Interim Planning Scheme 2015*. The Property is bordered to the north, north-west and north-east by '*General Residential'* (red shading), to the west and east by '*Community Purpose'* (cream shading), and to the south by '*Utilities*' (yellow shading) (i.e. High Street).

For the purpose of this investigation:

- The '*General Business'* zone is taken to be equivalent to '*Commercial / Industrial*' land use in the *National Environment Protection (Assessment of Site Contamination) Measure*, 1999, as amended May 2013 (ASC NEPM);

- The proposed rezoning to 'Community Purpose' is also taken to be equivalent to '*Commercial / Industrial*' land use under ASC NEPM.

In addition:

- Since some of the land is proposed to be use as a public park and open space, these areas are also assessed against '*Recreational'* and '*Public Open Space'* land use criteria of ASC NEPM.

3.3 ENVIRONMENTAL SETTING

The Property is located within a developed mixed use and residential area of Oatlands. The Dulverton Rivulet runs approximately 700m north of the Property and one of its tributaries is located approximately 450m north-west of the Property. Lake Dulverton Conservation Area is approximately 250m to the south (at its closest point). There are no other apparent sensitive environmental values within 250m of the Property.

3.4 TOPOGRAPHY

The topography of the Property slopes gently toward the north-west (South Parade) and stands at around 400m Australian Height Datum (AHD) (The LIST topographic map). Based on investigations undertaken on the Property as a component of the DSI, some fill has been imported to the Property to level the surface (primarily along the southern boundary, which has then been covered with a veneer of gravel road base. Oatlands is situated on the south of Burburys Hill and was built around the northern shore of Lake Dulverton. The lake marks the southern and eastern extents of the town.

3.5 GEOLOGY, HYDROLOGY AND HYDROGEOLOGY

3.5.1 GEOLOGY AND SOIL PROFILE

The Mineral Resources Tasmania (MRT) *Digital Geological Atlas – South East Tasmania 1:250,000 Sheet* indicates the Property is underlain by Triassic-aged sediments, described as 'Undifferentiated Triassic fluvio-lacustrine sequences of sandstone, siltstone and mudstone'.

This was confirmed by geotechnical investigations (Tasman Geotechnics, 2017), and during the DSI. The generalised profile encountered includes:

- Road base gravel (0.2m to 0.3m thick); overlying,

- Soil fill with pottery, wire, dolerite cobbles and clay brick fragments. The thickness of this layer varied from 0.15m to 0.5m; overlying,
- Old topsoil layer; present in some areas, and up to 8cm thick; overlying,
- Varying proportions of silt, sand and gravel, red/brown to black/grey; overlying,
- Bedrock sandstone encountered at between 1 and 1.2m below ground level. The depth to bedrock generally increased towards the north of the Property.

The soil profile encountered during installation of the groundwater well MW1 (Section 5.7.2) consisted of:

- 0-0.5m – silty sand fill;
- 0.5-1.0m – silty sand soil; and
- 1.0-14.0m – weathered bedrock (sub-horizontal, sparsely sub-vertically fractured and interpreted as Triassic in age), with minor interbedded siltstone at 8-9m and 11.5-12m.

3.5.2 ACID SULPHATE SOILS

The LIST notes that there is an extremely low probability of acid sulphate soils being present at the Property (1-5% chance of occurrence) (Appendix D).

3.5.3 HYDROLOGY, SURFACE WATER AND DRAINAGE

The nearest surface water bodies are Dulverton Rivulet and its tributary, 450m north-west of the Property, and Lake Dulverton, 250m south of the Property.

There are no documented drainage lines within the Property. A stormwater line runs from adjacent to the former Crib Room past the eastern side of the former Truck Service Shed to South Parade. The topographical heights suggest that surface drainage from the Property would include:

- Land along the south of the Property would drain to stormwater drains installed along High Street; and
- The remainder of the Property would be expected to drain northwards towards stormwater drains installed along South Parade.

3.5.4 HYDROGEOLOGY AND GROUNDWATER QUALITY

Site:

Groundwater was generally not encountered to the depth of any of the soil investigation locations (i.e. 2.0m) with the exception of potential minor localised perched water noted as seepage on the eastern side of test pit TP6. One groundwater well, MW1, was installed on the Property (5/7/2018) as a component of the DSI, and groundwater was initially noted at a depth of 10.6-11mbg though standing water depth on the day of sampling (12/7/2018) was 5.83mbg. Findings from the groundwater well installation are provided in Section 5.7.2.

Groundwater yield in MW1 was estimated to be around 1–2 L/min. The water was coloured brown with suspended solids. Groundwater quality was measured on 5 July 2018 over a period of over 1 hour as the well was developed:

- Electrical conductivity ranged from initial readings of 957 to a final reading of 1,645 µS/cm;

- pH ranged from initial reading of 6.28 to final reading of 5.22 pH units; and
- Redox ranged from a low reading of 167mV to a high of 305mV, with a final reading of 281mV.

Water quality on the day of sampling (12 July 2018) was recorded as:

- Electrical conductivity: 1686 µS/cm (not considered potable for humans);
- pH: 5.81 pH units; and
- Redox: 201mV.

Local / Regional:

The nearest registered groundwater well (off site) is located approximately 500m east of the Property, near the northernmost point of Lake Dulverton. It is bore 17973 drilled in 1996 by KMR Drilling (Appendix E). It is recorded as having been drilled into Triassic geology comprising 2m of clay, then massive sandstone from 2 to 42m (Groundwater Information Access Portal, Department of Primary Industries, Parks, Water and Environment (DPIPWE), 2017). The other nearest wells are located north of the Property, on the northern side of Dulverton Rivulet, and are expected to be within a different groundwater catchment. Further details on registered wells are provided in the WCC desktop report[6] at Appendix K.

Sandstone bedrock represents a fractured rock aquifer, within which yields may vary widely depending on the fracturing of the rock, and the proximity and shallowness of the recharge area and seasonal variability. Based on the number and locations of registered wells within the Oatlands area, groundwater does not appear to be used as a resource within the area.

WCC noted: '*In my view, the groundwater at and near Oatlands is unconfined, with water in fractures in (principally) sandstone bedrock; the intervening rock between fractures is dry. At intermediate and regional scales, there is only one aquifer; however, at a local scale, low permeability soil profiles create confined conditions. This may occur at and near the Works Depot.*'

WCC also noted that:

- Groundwater at intermediate-scale is moving from Lake Dulverton under Oatlands and the Works Depot towards Dulverton Rivulet;
- The gradient of the water table between the Lake Dulverton and Dulverton Rivulet is of the order of 1:500 which is low.

3.6 HERITAGE

There are a number of sites of historic heritage significance in Oatlands that are permanently listed on the Tasmanian Heritage Register. None are located within the Property. The closest listed heritage sites are summarised in Table 3. The well-known Callington Mill Historic Site is located approximately 330m east of the Property.

There are no sites of national historical significance listed in the Australian Heritage Database located near the Property.

[6] Cromer, W. C. (WCC 2018a). *Former Council Works Depot, Oatlands. Qualitative Groundwater Risk Assessment.* Unpublished report for COVA by William C Cromer Pty Ltd, 9 May 2018.

Table 3: Summary of Sites of Heritage Significance near the Site

ID*	NAME	ADDRESS	DISTANCE FROM THE SITE
5514	The Square	7 Gay Street, Oatlands	50m to the north
5516	Rechabite Hall	1 Gay Street, Oatlands	30m to the north-east
5529	Button Bros Store	78 High Street, Oatlands	75m to the east
11041	Former Commerciale Bank	64 High Street, Oatlands	45m to the south-west
11042	Pharmacy (former)	66 High Street, Oatlands	30m to the south

* Information sourced from the Tasmanian Heritage Register

3.7 SERVICES INFRASTRUCTURE

Prior to buildings being demolished, services were provided by the following (refer to the SHR & SAQP (2017)):

- **Water**: TasWater mains connection was from High Street, through the Community Centre to the former crib room. There was a second connection from South Parade to the former wash bay.
- **Sewerage**: TasWater sewer mains connection is from Church Street to a pit in front of the former crib room.
- **Stormwater**: a stormwater line runs from adjacent to the former crib room past the eastern side of the former truck service shed to South Parade.
- **Electricity**: Supply was underground adjacent to the Community Centre to the main workshop. From there it ran underground to the former truck service shed, then underground to the former office block.
- **Telecommunications**: Main line connection was from High Street to the former main workshop (mechanics office). A second line connection was from Church Street through the backyard of the adjacent university house to the former office block.

Underground services plans showing the location, elevation and size of internal underground services were provided by the client, a copy is provided in Appendix F. Such plans can assist in identifying preferential contamination migration pathways, if potentially mobile contamination is identified.

4. PROPERTY HISTORY

4.1 PREVIOUS PROPERTY USES

A summary of the identified previous Property uses, as detailed in the SHR & SAQP (2017), is provided in Table 2.

4.2 AREAS OF POTENTIAL CONTAMINATION

SHR & SAQP (2017) suggested that all potential Property land and/or groundwater contamination sources were likely to relate to the former SMC Works Depot operations. Identified areas of interest are summarised in Table 4 with Sites sampled as a component of the DSI shaded.

Anecdotal information (pers. comm. Craig Whatley and Jack Lyall, February 2018) collected during the DSI, suggested that a blacksmith had operated on the land of 68 High Street. DSI investigations confirmed the presence of heavy metals-impacted sooty wastes and iron-mongery consistent with blackmiths' wastes which were found to be a source of heavy metals contamination in the area beneath the main workshop, Location T14.

Target locations are shown on Figure 3 (Appendix A).

4.3 CONTAMINANTS OF POTENTIAL CONCERN

As identified in the SHR & SAQP (2017) and based on field observations, CoPC include:

- ACM;
- Heavy metals [arsenic (As), beryllium (Be), boron (B), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), lead (Pb), manganese (Mn), mercury (Hg), nickel (Ni), selenium (Se), vanadium (V) and zinc (Zn)];
- Herbicides / pesticides;
- Phenols;
- Semi-volatile polycyclic aromatic hydrocarbons (PAHs);
- Total petroleum hydrocarbons (TPH) / total recoverable hydrocarbons (TRH); and
- Volatile monocyclic aromatic hydrocarbons [benzene (B), toluene (T), ethyl-benzene (E), o, m and p xylenes (X) and naphthalene (N); commonly referred to as BTEXN].

Additional analytes included in the sampling suite for waste classification of some excavated soils for offsite disposal included:

- Cyanide;
- Fluoride;
- Hexavalent chromium (Cr(VI)), silver (Ag) and tin (Sn); and
- Polychlorinated biphenyls (PCBs).

Table 4: Summary of Areas of Potential Contamination and CoPC

TARGET ID	SITE DESCRIPTION	POTENTIALLY CONTAMINATING ACTIVITIES	COPC
T1	Above-ground Storage Tank (AST) 1	Above-ground storage and dispensing of diesel	TPH / TRH, PAH and phenols
T2	Underground Petroleum Storage System 1 (UPSS1)	Underground storage of petrol and vehicle refuelling	TPH / TRH, BTEXN, PAH and Pb
T3	UPSS2	Underground storage of diesel and vehicle refuelling	TPH / TRH, PAH and phenols
T4	Vehicle Wash Bay	Vehicle wash down; herbicide / pesticide loading onto vehicles; stormwater pit and pipework	TPH / TRH, BTEXN, PAH, phenols, Pb and herbicides / pesticides
T5	Truck Service Shed	Servicing of vehicles; storage of oils, greases, degreasers and waste oil; welding activities	TPH / TRH, BTEXN, PAH, phenols and heavy metals
T6	Original Oil Store	Storage of oils, greases, degreasers and waste oil	TPH / TRH, BTEXN, PAH and phenols
T7	Bitumen Storage and Loading Area	Bitumen storage and loading	Contamination caused by bitumen products would be visible on the surface (none was observed).
T8	Off-site Pesticide and Herbicide Store	Risk of contamination to the Property is considered low (outside Property boundary)	Pesticides and herbicides
T9	Ambulance Garage and Former Mortuary	Risk of contamination to the Property is considered low (outside Property boundary)	Formaldehyde
T10	Pesticide / Herbicide Store	Storage of pesticides / herbicides	Localised contamination is possible beneath and in proximity to the Store and the Wash Bay (Site 4).
T11	Known diesel spill (1993)	Diesel spill and flow path	TPH / TRH, PAH & phenols
T12	Known Aluminium Sulphate Spill (1988)	Aluminium sulphate spill	The material safety data sheet (MSDS) indicates that aluminium sulphate is not classified as a dangerous good under the criteria of the Australian Dangerous Goods Code. As the spill location was not known and as there was no evidence at surface, the spill area could not be targeted for the investigation. Therefore, the aluminium sulphate spill is not considered further.
T13	UPSS3	Underground storage of petrol and refuelling	TPH / TRH, BTEXN, PAH and Pb

TARGET ID	SITE DESCRIPTION	POTENTIALLY CONTAMINATING ACTIVITIES	COPC
T14	Main workshop	Storage of oils, greases, degreasers and waste oil; welding activities	TPH / TRH, BTEXN, PAH, phenols, and heavy metals
T15	Original (former) workshop	Storage of oils, greases, degreasers and waste oil; welding activities	TPH / TRH, BTEXN, PAH, phenols, and heavy metals
Site	Property (site-wide)	Use of the Property as a Council Works Depot; presence of fill material; potential blacksmith's wastes	TPH / TRH, BTEXN, PAH, heavy metals and ACM

Shading indicates target area was investigated during the DSI.

4.4 ANECDOTAL INFORMATION

Further to that provided in the SHR & SAQP (2017), additional anecdotal information was provided during the DSI and is discussed below:

- Mr Craig Whatley:
    - Following the 1993 diesel spill at target location T11, the grass on the northern side of South Parade (opposite the Property access) died (pers. comm. 01/02/18).
    - Agreed that previously decommissioned UPSS1 was located at target location 2 (T2) (pers. comm. 02/02/18).
    - A blacksmith was historically located around 68 High Street, which may have resulted in disposal of dumped charcoal, horse shoes, etc. (pers. comm. 02/02/18). Sooty wastes and heavy metals-impacted soot were identified beneath the workshop, target T14. Wastes were delineated, excavated and disposed during the DSI (refer to Sections 5.5.2 and 5.8).
- Mr Irwin Kean (pers. comm. 6/02/18 via Craig Whatley) – worked nearby, 60 years ago; Mr Kean could only remember a UPSS at the Church Street entrance; he cannot remember one behind the building at 70 High Street (C. T. Fish building).

5. DETAILED SITE INVESTIGATION

5.1 GUIDELINES

The DSI investigations were undertaken utilising publications, guidelines and regulations, including (as appropriate):

- ASC NEPM.
- AS 4482.1-2005.
- AS 4482.2-1999, *Guide to the sampling and investigation of potentially contaminated soil, Part 2: Volatile compounds,* Standards Australia, 2005 (AS 4482.2-1999).
- Information Bulletin No. 105 *Classification and Management of Contaminated Soil for Disposal,* EPA Tasmania, November 2012 (IB105).
- *Underground Petroleum Storage Systems: Decommissioning Assessment Report Requirements*, EPA Tasmania Technical Guideline, (UPSS1, July 2018).
- *Underground Petroleum Storage Systems: Decommissioning Assessment Sampling and Risk Assessment Requirements*, EPA Tasmania Technical Guideline, (UPSS2, July 2018).

5.2 DATA QUALITY OBJECTIVES

The data quality objectives (DQO) process is outlined in the SHR & SAQP (2017).

5.3 DSI COMPONENTS

The various components of the DSI are discussed in the following sections:

- Building Demolition – Section 5.4.
- Soil Investigations, including SAQP implementation, remedial and validation works – Section 5.5.
- UPSS Decommissioning – Section 5.6.
- Groundwater Investigations, including qualitative groundwater risk assessment, groundwater well installation and sampling – Section 5.7.
- Waste Soil Classification and Disposal – Section 5.8.

5.4 BUILDING DEMOLITION

Most above-ground buildings, including slabs and the in-ground service pit (target location T5) were demolished and removed by SMC in January 2018. The service pit was left open and later inspected and sampled by COVA as a component of the soil investigations (Section 5.5). Concrete slabs from the service pit were visually inspected by COVA for potential staining and possible boxing materials (potentially containing ACM) prior to off-site disposal – no staining or boxing materials were noted, and the concrete was clean and suitable for off-site disposal.

UPSS2 (target location T3) decommissioning was completed by SMC with COVA inspecting the removal of the tank and sampling the pit (Section 5.6).

It is understood that demolition and clean-up works occurred in a controlled manner in order to prevent impact from any contamination present on the Property. No stained or odorous soil were identified beneath the slabs by SMC during removal. The intent of demolition was to provide a predominantly vacant investigation area to enable implementation of the SAQP.

According to an extract from the Asbestos Register (Appendix G), there was ACM (Zelemite SB panel, 100 x 500 x 500 mm) in the main workshop (target location T14) identified in 2007. It was noted as stable/sealed and was reportedly removed by an experienced contractor in appropriate packaging and properly disposed of (refer to Demolition Completion Form in Appendix N).

Some underground services were disconnected including:

- Electrical, and
- Telecommunications.

Other services were left active, including:

- Water,
- Stormwater, and
- Sewer.

A copy of the Certificate of Final Inspection – Demolition Work, Form 69 is provided in Appendix N.

5.5 SOIL INVESTIGATIONS

The sampling rationale is summarised in Table 5, with details provided in the following sections. Target and sampling locations are provided in Figures 3 to 15 in Appendix A.

Sample descriptions are provided on the Sample Register (Appendix I) and Test Pit Logs are provided in Appendix J.

Table 5: Summary of Sampling Rationale – Soil

SITE ID / DESCRIPTION	NUMBER OF SAMPLES COLLECTED (SAMPLE IDs)			COMMENT
	SAQP IMPLEMENTATION & DSI WORKS	ADDITIONAL WORKS	DISPOSAL	
Target Locations (Refer to Figure 3, Appendix A)				
T1: AST 1	14 (T1-01 – T1-14)	6 – stockpiles footprint validation (Stockpile A – SV1 & SV2 Stockpile B – SV2 to SV6) Refer to Section 5.7 for groundwater investigations	13 (DT1, DT2, A1, A3-1, A3-2, A2, B1, B5, B12-1, B12-2, B16 & B20)	• Results of initial excavation were ok • Suspected ACM fragment (ACM3) was confirmed as non-ACM. • Excavated soil was classified & disposed of (Section 5.8) • Stockpile footprints were validated

SITE ID / DESCRIPTION	NUMBER OF SAMPLES COLLECTED (SAMPLE IDs)			COMMENT
	SAQP IMPLEMENTATION & DSI WORKS	ADDITIONAL WORKS	DISPOSAL	
T2 / UPSS1	5 (T2-Wall 1 – T2-Wall 4 & T2-Base)	-	-	• Results of initial excavation were ok and UPSS1 appears to have been effectively decommissioned and pit backfilled with clean fill
T3 / UPSS2	6 (T3-Wall 1 to T3-Wall 4, T3-Base & T3-bowser base and Fuel Line)	- Refer to Section 5.7 for groundwater investigations	4 (Backfill sand, T3-Stockpile 1, T3-Stockpile 2 & T3-Waste Soils) 1 waste water – water was left to evaporate (refer to Appendix H and Appendix N for SMC photograph)	• Results of initial excavation were ok • Excavated soil was classified & disposed of (Section 5.8) • Some contamination was found in backfill sands and materials • Pit was in bedrock and was unstained and had no odour
T4 / Vehicle Wash Bay	5 (T4-01 – T4-05)	-	-	• Results of initial excavation were ok
T5 / Truck Service Shed	9 (T5-01 – T5-09)	-	-	• Results of initial excavation were ok
T6 / Original Oil Store/ Former pesticide store	2 (T6-01 & T6-02)	-	-	• Results of initial excavation were ok
T11 / Known Diesel Spill (1993)	8 (T11-01 – T11-08)	-	-	• Results of initial excavation were ok
T13 / UPSS3 (possible)	2 (T13-01 & T13-02)	- Refer to Section 5.5.2 for GPR investigations	-	• Results of initial excavation were ok • GPR survey did not locate tank
T14 / Main workshop	4 (T14-01 – T14-04)	Heavy metals Pb) contamination found at T14-03 – small remedial excavation undertaken base of excavation validation (T14-03-V01)	1 – metals-impacted stockpile (SP-MET)	• Additional excavation & validation was required • Excavated soil was classified & disposed of (Section 5.8) • Stockpile footprint was later excavated during the removal of metals-impacted soot – refer to TP17, below

SITE ID / DESCRIPTION	NUMBER OF SAMPLES COLLECTED (SAMPLE IDs)			COMMENT
	SAQP IMPLEMENTATION & DSI WORKS	ADDITIONAL WORKS	DISPOSAL	
T14 / Main workshop area – FILL & ACM identification	2 – ACM (ACM1 & ACM2)	Detection of confirmed ACM and of fill material with building demolition rubble along the south of the Site was investigated with 4 trenches 8 – fill material (Fill 1 – Fill 8)	1 – ACM impacted stockpile (ACM-SP1)	• 2 confirmed non-friable ACM pieces (ACM1 & ACM2) identified on the surface and removed • Fill associated with the two ACM pieces was tested, classified, and removed as ACM-waste (Section 5.8) • The remainder of the fill was assessed – no ACM identified except for fragments of AC water pipe, which were removed • Stockpile footprint was validated visually for absence of ACM
T15 / Former Workshop	8 (T15-01 to T15-08)	Due to the presence of the C.T. Fish building, 3 boreholes and 1 test pit were also dug in the small park west of the building	-	• Results of initial excavation were ok
Grid Sampling (TP=Test Pit)				
TP1	2 (TP1-01 & TP1-02)	-	-	• Results of initial excavation were ok
TP2	2 (TP2-01 & TP2-02)	-	-	• Results of initial excavation were ok
TP3	2 (TP3-01 & TP3-02)	-	-	• Results of initial excavation were ok
TP4	2 (TP4-01 & TP4-02)	-	-	• Results of initial excavation were ok
TP5	2 (TP5-01 & TP5-02)	-	-	• Results of initial excavation were ok
TP6	2 (TP6-01 & TP6-02)	-	-	• Results of initial excavation were ok
TP7	2 (TP7-01 & TP7-02)	-	-	• Results of initial excavation were ok

SITE ID / DESCRIPTION	NUMBER OF SAMPLES COLLECTED (SAMPLE IDs)			COMMENT
	SAQP IMPLEMENTATION & DSI WORKS	ADDITIONAL WORKS	DISPOSAL	
TP8	2 (TP8-01 & TP8-02)	-	-	• Results of initial excavation were ok
TP9	2 (TP9-01 & TP9-02)	-	-	• Results of initial excavation were ok
TP10	2 (TP10-01 & TP10-02)	TRH contamination at TP10-02 was chased out with a large remedial excavation 21 – remedial pit validation (TP10V-01 – TP10V-21) 8 – stockpile footprints validation (L1-V1 to L1-V3, L2-V1 to L2-V4 & L3-V1) Refer to Section 5.7 for groundwater investigations	10 - initial (C1-C4, D1-D5 & E1) 1 – post bioremediation of the E stockpiles, initially classified as Level 3 (L3-12.9.18)	• Additional excavation & validation was required based on TRH results in TP10-02 • L3 soils were turned & allowed to bio-remediate to L1 • Excavated soil was classified & disposed of (Section 5.8) • Stockpile footprints were validated
TP11	2 (TP11-01 & TP11-02)	-	-	• Results of initial excavation were ok
TP12 (covers Target area T10 – pesticide store)	3 (TP12-01, TP12-02 & TP12-03)	-	-	• Results of initial excavation were ok
TP13	2 (TP13-01 & TP13-02)	-	-	• Results of initial excavation were ok
TP14	2 (TP14-01 & TP14-02)	-	-	• Results of initial excavation were ok
TP15	2 (TP15-01 & TP15-02)	-	-	• Results of initial excavation were ok
TP16	2 (TP16-01 & TP16-02)	-	-	• Results of initial excavation were ok
TP17	Initially excavated as an additional grid location in vicinity of the main workshop (Site 14)	2 (TP17-01 & TP17-02) Additional excavation & validation was required due to lead contamination	4 (MS01 – MS04)	• Excavated soil was classified & disposed of (Section 5.8) • Stockpile footprints were validated

SITE ID / DESCRIPTION	NUMBER OF SAMPLES COLLECTED (SAMPLE IDs)			COMMENT
	SAQP IMPLEMENTATION & DSI WORKS	ADDITIONAL WORKS	DISPOSAL	
		14 - validation (MR01 – MR14) 5 – stockpile validation (OPbVal01 to OPbVal 05)		
TP18	Excavated as an additional grid location	2 (TP18-01 & TP18-02)	-	• Results of excavation were ok
TP19	Excavated as an additional grid location	2 (TP19-01 & TP19-02)	-	• Results of excavation were ok
Trench Investigations and Sampling				
Trench 1	Excavated to assess possible extensions to identified hydrocarbon contamination	2 (Trench 1a & 1b)	-	• Results of excavation were ok • Trench was left open for the builder to inspect the profile
Trench 2	Excavated to assess possible extensions to identified hydrocarbon contamination	1 (Trench 2a)	-	• Results of excavation were ok • Trench was backfilled
Trench 3	Excavated to assess possible extensions to identified hydrocarbon contamination	3 (Trench 3a-3c)	-	• Results of excavation were ok • Trench was backfilled
Trench 4	Excavated to assess possible extensions to identified hydrocarbon contamination	2 (Trench 4a & 4b)	-	• Results of excavation were ok • Trench was backfilled
Trench 5	Excavated to assess possible extensions to fill and to identified hydrocarbon contamination	5 (TR5-01 – TR5-05)	-	• Results of excavation were ok • Trench was backfilled
Trench 6	Excavated to assess possible extensions to fill and to identified hydrocarbon contamination	A small remedial excavation was dug in the centre of Trench 6 due to intersected hydrocarbon contamination	1 (TR6-SP1)	• Results of trench and remedial excavation were ok • Trench was backfilled • Excavated soil was classified & disposed of (Section 5.8)

SITE ID / DESCRIPTION	NUMBER OF SAMPLES COLLECTED (SAMPLE IDs)			COMMENT
	SAQP IMPLEMENTATION & DSI WORKS	ADDITIONAL WORKS	DISPOSAL	
		11 – trench validation (TR6-01 – TR6-11) 1 – stockpile validation (L2-V5)		• Stockpile footprint was validated
Sewer Line Trench	Excavated to chase out the western extension to identified hydrocarbon contamination	5 (SWP01 – SWP05)	Waste soils were added to the Level 2 stockpile at Stockpile D (refer to Section 5.8)	• Excavated along the sewer pipeline towards Church Street • Results of excavation were ok • Trench was backfilled

' – ' indicates additional works were not required based on acceptable concentrations of CoPC in initial samples.

5.5.1 SAQP IMPLEMENTATION

As per the SHR & SAQP (2017), soil samples were obtained based on grid sampling across the approximately 6,000 m^2 Site and the minimum number of sampling points required for Site characterisation based on detection of a circular hotspot using a square grid (Table E1 of AS4482.1-2005). In addition, sampling was undertaken at identified target locations of potential contamination (Table 4).

Soil sampling details are summarised in Table 5 and investigation locations are shown in Figures 3 to 6 (Appendix A).

Several pieces of potential ACM were collected in the vicinity of target T14 (main workshop) and additional investigations were conducted in this area (Section 5.5.2).

Where contamination was noted either during sampling or based on analytical results, additional works were undertaken via remedial excavation and validation, or via additional intrusive investigations (e.g. trenching and sampling). These additional works are outlined in the following section.

5.5.2 ADDITIONAL REMEDIAL AND INVESTIGATION WORKS

Based on visual, olfactory and/or analytical results from the SAQP implementation investigations (Section 5.5.1), additional remedial or investigation works were required at a number of locations. These are discussed below. Refer to Figures 5 and 7 to 15 (Appendix A).

Target T1 (AST 1):

- Initial excavations in the vicinity of Target T1 identified visual and olfactory evidence of soil contamination likely related to the former storage of fuel at this location.
- Additional excavation was required to delineate the contamination, remove it and validate the area (refer to Figure 7, Appendix A).
- Identified hydrocarbon contamination was found to extend from Target T1 and appeared to end at a cross-cutting sewer line. However, follow up of contamination in TP10, north of the sewer line, showed that hydrocarbon contamination extended northwards from the sewer line (refer to TP10 below, and Figure 8, Appendix A).
- Due to concerns with imported fill in the south-east of the Property, lack of investigation at depth and in proximity to the contamination at T1, additional trenches were excavated to investigate the area (refer to Figure 11, Appendix A):
    - Trench 5 was dug parallel to the southern fence line. Two very small lenses (2cm thick x 30cm wide) of diesel impacted gravels (blue-green colour) were noted. The lenses lie under a 20-30cm thick layer of clean red gravel. The stained gravels were not excavated as they are very small occurrences, localised and low grade. The trench has been backfilled.
    - Trench 6 was dug between the T1 / AST remedial excavation and the eastern fence. A small area of hydrocarbon (diesel) contamination was identified cross-cutting approximately mid-way along the length of Trench 6. The contaminated soils were chased out, perpendicular to the trench (refer to Figure 12, Appendix A). It was initially thought that the contamination might be linked to the T1 / AST remedial excavation spill, but it wasn't. The contamination appears to have come from a separate small diesel spill, closer to the eastern fence line. Contaminated excavated soil was stockpiled north of Trench 6. The trench was partly backfilled.
- Stockpiled soils were sampled, classified and appropriately disposed of (Section 5.8) and footprints validated.
- As a result of the volume of diesel-contaminated soil removed from the area, and the decommissioning of UPSS2 (Target T3), groundwater investigations were conducted (Section 5.7).

Target T13 (UPSS3):

- A GPR survey was conducted to help locate the possible UPSS3. No evidence of a possible UPSS was found by GPR. One anomaly was noted to the north-west of the C. T. Fish building, in the area not previously dug by trenches. The GPR survey area is illustrated on Figure 16 (Appendix A).
- Initial excavation in the vicinity of Target T13 located pipework possibly related to a former UPSS but the UPSS itself, if there was ever one, was not located (refer to Figure 6, Appendix A). Soil samples were taken and tested for CoPCs.
- None of the trenches intersected any evidence of pit backfill materials.
- It is likely that the WST documentation was misleading and there is no UPSS3 on the Site.

Target T14 (Main Workshop):

- Additional excavation in the vicinity of Target T14 was required and included:
    - Excavation of soils around T14-03, where lead contamination was reported (refer to Figure 5, Appendix A). Soils were stockpiled, sampled for classification, and the remedial excavation validated. This area was later included in the large metals remedial excavation triggered by the results at T17-01 (discussed below in paragraph Grid Test Pits TP17–19).
    - Removal of a small area of ACM-impacted fill (where ACM1 and ACM2 were found) (refer to Figure 10, Appendix A).
    - Investigation of fill material via four trenches (refer to Figure 10, Appendix A). Samples Fill 1 to Fill 8 were collected from the trenches excavated along the southern edge of the Property. The profile was also assessed visually and olfactorily for ACM and hydrocarbon contamination. Several large fragments of broken asbestos-cement (AC) water pipe were unearthed and bagged for disposal as ACM. None of the soil samples identified any ACM in fill. Trenches were later backfilled.
- Due to the identification of ACM on the surface and the presence of BDR, a walkover clearance check across the Site was conducted by a Building Surveyor. A Certificate of Final Inspection – demolition work dated 6/5/2018 was provided (Appendix N). SMC also noted: '*The Certificate of Final Inspection – Demolition works, for the Workshop, Council Depot […] It is noted that there was no asbestos on the site to be removed however, some AC shards were found in the soil and they were removed to Copping as part of Item 6*' (Item 6 = 29.54T of asbestos contaminated waste disposed on 14/5/2018 to Copping; refer to SMC documentation, Appendix H).
- Stockpiled soils were sampled, classified and appropriately disposed of (Section 5.8) and footprints validated.

Grid Test Pit 10:

- Additional excavation in the vicinity of TP10 was required to follow up on the TRH results in sample TP10-02 (refer to Figures 8 and 9, Appendix A). Works included:
    - Chasing out identified hydrocarbon contamination, stockpiling contaminated soils, and validating the remedial excavation (refer to Figure 8, Appendix A). The contamination extended from north of the AST (Target T1) remedial excavation, to the northern end of CT-22710/1.
    - Chasing out an identified circular and approximately 1.5m deep apparent former waste pit, or possible fire pit (refer to Figure 8, Appendix A). Wastes were excavated and placed on Stockpiles D (refer to Figure 9, Appendix A). The pit was situated west of the sewer man-hole, adjacent to the northern side of the sewer line. Wastes included spent oil filters, wire, and a large range of sundry refuse. The pit materials had a foul odour.
    - Chasing out identified hydrocarbon impact along the western segment of the sewer pipeline (Sewer Pipeline Trench) towards Church Street, along the Right-of-Way (refer to Figure 8, Appendix A). A small volume of impacted soils was intersected and removed, placed on Stockpiles D. The trench was continued several metres along the sewer line to ensure no further contamination was present. The trench profile was sampled for validation purposes. The trench was later backfilled.
- Stockpiled soils were sampled, classified and appropriately disposed of (Section 5.8) and footprints validated (refer to Figure 9 and 13, Appendix A).

- Given the extent of hydrocarbon contamination, additional investigation trenches were required to confirm the status of soils adjacent to remedial pits. Four trenches were dug (Trenches 1 to 4) (refer to Figure 11, Appendix A):
    - Trench 1: dug from the north-eastern side of the TP10-remedial excavation towards TP7. The trench was left open for the builder to be able to view the profile and depth to bedrock.
    - Trench 2: dug from the eastern side of the sewer manhole. The trench has been backfilled.
    - Trench 3: dug between the south-western wall of the TP10 excavation to the western boundary fence. The trench has been backfilled.
    - Trench 4: dug between the north-western wall of the TP10 excavation to the western boundary fence. The trench has been backfilled.
- Trench profiles were sampled, and upon receipt of analytical results, the trenches were backfilled, except for Trench 1, as noted above.
- A disused AC water line was intersected on the left hand side of the hydrocarbon excavation (refer to Figure 8). The AC piping was removed and wrapped in plastic and disposed as asbestos-containing waste to Copping (refer to Section 5.8).

Grid Test Pits TP17 to 19:

- Given the potential splitting of the Property titles, three grid locations were added to the sampling program to ensure each area (if sub-divided) met the minimum number of sampling points required for Site characterisation based on detection of a circular hotspot using a square grid (Table E1 of AS4482.1-2005). The additional test pit locations are shown in Figure 3, Appendix A.
- Pb contamination detected at TP17-01 was at levels which required remediation. The Pb contamination was associated with sooty wastes, likely from historical blacksmithing refuse.
- Remedial excavation works chased out visible sooty wastes from around TP17 (refer to Figure 14, Appendix A). Waste soils were stockpiled to the north of the excavation, and the remedial excavation sampled for validation. The remedial excavation encompassed the small remedial pit around T14-03.
- Stockpiled soils were placed on plastic liner, the volume was estimated and samples were taken for classification. Pb concentrations were elevated, and Pb leachability testing was undertaken. The results classified the soils as Level 4 contaminated waste soils. Permission was obtained to dispose of the soils to the Copping C-Cell; refer to Section 5.8. The stockpile footprints were validated after removal of the waste soils.

5.6 UPSS DECOMMISSIONING (TARGET T3)

Although compliance with UPSS1 and UPSS2 is not strictly required when assessing an entire property, they were used as a guide during the decommissioning of UPSS2 (Target T3).

Decommissioning works are summarised in Table 6. Refer to Figure 4 (Appendix A); Site photographs on the day are provided in Appendix 0.

Northern Fuel Maintenance Pty Ltd issued a Certificate of Disposal dated 28/2/2018, for 'gas free, collection, transport and disposal of UST [underground storage tank] at Southern Midlands Council Depot, Oatlands: 1 x 5,000L

underground steel cylindrical fuel tank'. A copy is provided Appendix N. A UPSS Decommissioned UPSS Form is being lodged with EPA, concurrently with this report.

Table 6: Decommissioning Details – UPSS2 (Target 3)

ITEM	DETAILS
UPSS Capacity	5 kL
UPSS Contents	Diesel
UPSS Age	25 years (installed in 1993 to replace AST 1 (Target T1)
UPSS Ownership	SMC
UPSS Use	Vehicle refuelling from 1993 until January 2011
Contaminants of Potential Concern	BTEXN, TPH/TRH, PAH, Phenols
Date of UPSS Decommissioning	2 February 2018
Decommissioning Method	• Tank contained a mix of water and diesel and the contents was drained into a bulka bin for sampling and disposal. • Tank and associated infrastructure (fuel line and bowser) were excavated and removed. • Tank condition was average with holes noted at both ends towards the base. • After removal of backfill and bedding sands and soils, bedrock was exposed at the base of the pit. No staining was noted in the final remedial excavation (refer to photographs in Appendix 0). • Excavated soils, backfill sands and bedding materials were segregated into clean materials and contaminated / odorous materials. Only some of the backfill sands and bedding materials were found to be impacted with hydrocarbon odours. Clean soils were stockpiled next to the pit, while impacted soils were placed into plastic-lined skip bins. • The walls of the remedial excavation were sampled; the base of the bowser and fuel line were sampled; excavated soils were sampled, classified and any impacted soils disposed offsite (Section 5.8) • A water sample was taken from the UPSS water (it should be noted that SMC had emptied the fuel from the tank in December 2017; it is understood the tank was filled with water by unauthorised people).
Date of Sampling	2 February 2018: • Soil • Water – tank contents Accumulated rainwater in the pit was sampled opportunistically on 20/2/2018.

ITEM	DETAILS
Sampling Method	• Pit validation samples were collected from the walls and base of the excavated pit by scraping the sandstone bedrock; grab soil samples were taken from beneath the fuel line and bowser, and from stockpile materials for waste classification. • Due to safety considerations, pit samples were collected by SMC staff under COVA instructions and observation. • After decommissioning, rainwater accumulated within the UPSS excavation and a sample was collected on 20/2/2018. • One groundwater well, MW1 was installed down gradient (Section 5.7.2).
Assessment Team	• SMC – excavation, removal and disposal of the UPSS and associated infrastructure. • COVA – sampling and reporting.

5.7 GROUNDWATER INVESTIGATIONS

DSI works resulted in two large adjacent remedial excavations, from one or several diesel spills. Given the extent of the contamination, there is potential for groundwater beneath the Property to have been impacted.

- The main source is believed to relate to spills associated with AST 1 (Target T1). AST 1 is understood to have been removed in the mid-1990s and a diesel spill was documented to have occurred in 1993. However other spills are likely to have occurred.

- A second and much smaller source, relates to diesel contamination identified in the backfill around UPSS2 (Target T3), which was decommissioned by removal on 2 February 2018 (Section 5.6). UPSS2 was emptied of most of the diesel in December 2017, but in February 2018, it was found to have been half filled with water and to have several holes in its base. The water was contaminated with residual diesel. This could have resulted in diluted diesel and water seeping into the profile for 1 to 2 months, prior to the tank being removed on 2 February 2018.

Groundwater was not encountered during any of the investigations, and bedrock consists of sub-horizontally bedded sandstone with minor vertical joints.

A desktop groundwater risk assessment was undertaken by WCC (2018a) (refer to Appendix K) to assess the level of risk to groundwater beneath the Property and to inform the need or not to drill and sample groundwater wells (Section 5.7.1).

Although any potential impacts to groundwater were likely to be related to spills which were at least 17 years old, and although the risk of impact to groundwater and downgradient receptors was considered to be low, the recommendation was for at least one groundwater well (MW1) to be installed downgradient of all hydrocarbon remedial excavations and for sampling to be undertaken. These works are discussed in the following sections.

5.7.1 QUALITATIVE GROUNDWATER RISK ASSESSMENT

WCC was commissioned in May 2018 to complete a qualitative groundwater risk assessment (QGRA)[7] of the Property and environs. Based on general hydrogeological principles, published geology, water bore records, and DSI investigations by COVA, the QGRA concluded that:

- Groundwater at unknown depth (but in early 2018 greater than 2.5m) is likely to be present in fractures in Triassic sandstone bedrock under the Property, and in fractures moving at an (unknown) rate in a general northerly direction to discharge to Dulverton Rivulet.
- The volume of mid-1990s spillage from the former AST (Target T1, removed about 15 years ago) is unknown. Given this uncertainty, it is possible that diesel contaminants have migrated to groundwater.
- It is unlikely that diesel contaminants from the former UPSS (Target 3, removed in February 2018) have migrated to groundwater.
- It is not possible to ascertain whether or not groundwater at the Property has been affected by diesel contamination and installation of at least one groundwater well was recommended (Section 5.7.2).

The QGRA is attached in Appendix K.

5.7.2 GROUNDWATER WELL INSTALLATION

WCC was commissioned in July 2018 to install and sample one groundwater well (MW1).

The well was located:

- In an inferred downgradient direction from the large hydrocarbon (diesel) remedial excavation.
- Approximately 10m downgradient from the former diesel UPSS2 (Target T3).

Drilling and bore completion was conducted by KMR Drilling under WCC supervision.

Well log and construction details are reported in the Drilling and Groundwater Sampling Report[8] copied at Appendix L and summarised in Table 7.

Table 7: Groundwater Well Details

ITEM	DETAILS
Well Installation Date	5 July 2018
Well Depth	14 m
Drilling Method	Solid auger to 1 m, then down-hole hammer drilling.

[7] Cromer, W. C. (WCC 2018a). *Former Council Works Depot, Oatlands. Qualitative Groundwater Risk Assessment.* Unpublished report for COVA by William C Cromer Pty Ltd, 9 May 2018.
[8] Cromer, W. C. (WCC 2018b). *Drilling and groundwater sampling, former Council Works Depot,* Oatlands. Unpublished report for COVA by William C Cromer Pty Ltd, 31 July 2018.

ITEM	DETAILS
Soil Sampling Method	• Continuous drill-return samples were bagged at 0.5 m intervals and samples were tested for volatile hydrocarbons using a photo-ionisation detector (PID). PID readings averaged 0.6 ppm. • 5 samples were selected for laboratory analysis. • 1 unfiltered groundwater sample was collected using air-lift techniques shortly after drilling and was submitted for laboratory analysis; the sample was taken for indicative purposes, but the method is not considered best practice and the results can be misleading; sampling should typically be undertaken a few days after drilling and installation. The well should also be developed prior to sampling.
Well Completion	Monitoring well completion details are provided in the WCC report (Appendix L) and included: casing and screen, gravel pack, bentonite seal, surface concrete and a stand-up lockable monument.
Interpreted Geology	Refer to the MW1 log (Appendix L): • 0-0.5 m – fill underlain by silty sand • 0.5-1.0 m – silty sand soil • 1.0-14.0 m – weathered bedrock (sub-horizontal, sparsely sub-vertically fractured sandstone, interpreted as Triassic in age, with minor interbedded siltstone at 8-9 m and 11.5-12 m).
Groundwater Occurrence	Groundwater was encountered in a water-bearing fracture between 10.4-11.0 mbg. Yield was estimated to be 1-2 L/min.
Groundwater Sampling Date	12 July 2018
Groundwater Sampling Method	Low-flow pumping was used, and 2 water samples were collected: • One at the water table at the start of pumping and when field parameters had stabilised; and • One opposite water-bearing fracture(s) near 10.4-11 mbg.
Standing Water Level	5.83 mbg (12/07/18)
Groundwater Flow Direction	Predicted to be towards the north-north-west (cannot be confirmed from one well), towards Dulverton Rivulet.

5.8 WASTE CLASSIFICATION AND DISPOSAL

Waste soils generated during the DSI were stockpiled, sampled, classified in accordance with IB105 and appropriately disposed of. EPA and Southern Waste Solutions (SWS) approvals were obtained where required (Appendix M) and disposal documentation was collated by SMC who organised waste cartage and disposal (Appendices H and N). Most contaminated soil stockpiles were located on plastic lined bases. Where stockpiles were stored directly on the ground, footprints were scraped during soil collection and disposal. Contaminated soil stockpile footprints were sampled for soil validation.

Waste soil details are provided in Table 8, with on-site storage details (prior to disposal) provided below.

Target T1 (AST 1) – Hydrocarbon Remedial Excavation (Part 1):

- Excavated soils were segregated based on visual and olfactory evidence of hydrocarbon contamination:
    - Stockpile A: 'clean' materials from surface stripping were stockpiled directly on the ground around the northern and western edges of the excavation.
    - Stockpile B: 'dirty' materials were stockpiled on plastic along the eastern side of the excavation.
    - Dog Trailers: 'dirty' materials from the most contaminated materials were placed in two SMC dog trailers lined with plastic. The trailers were covered with tarps pending classification results and disposal arrangements.

Target T3 (UPSS2):

- Clean pre-stripping soils were stockpiled on the southern edge of the excavation.
- Stained or odorous backfill sands and bedding materials were stored in two plastic lined skip bins. The skip bins were covered with tarps pending classification results and disposal arrangements.
- The tarps were subsequently removed to allow for volatilisation of unidentified compounds prior to disposal. The soils had a distinct volatile odour which was not picked up in the standard analytical suite results.
- Based on analytical results (Appendix S) the soils were classified as Level 1 for disposal, however, given they were very odorous, and based on discussions with the EPA, the soils were disposed to landfill instead of being reused. EPA agreed with this approach. The laboratory was not able to clarify why the odours were present, but results did not reflect presence of hydrocarbons. In the past, this has been attributed to possible presence of compounds in the TRH range <C6 which is not reported by the laboratory.
- Waste water from UPSS was contaminated with hydrocarbons. SMC allowed the water to evaporate prior to disposal of sludge (refer to documentation and photograph in Appendix H).

Target T14 (Main Workshop):

- Excavated soils were segregated based on visual evidence of contamination and soil / fill characteristics:
    - ACM-SP1 – potentially ACM-impacted materials were stockpiled directly on the ground north of the Community Centre.
    - SP-MET – metals (lead) impacted materials were stockpiled directly on the ground north of the Community Centre.

Test Pit 10 – Hydrocarbon Remedial Excavation (Part 2):

- Excavated soils were segregated based on visual (staining) and olfactory evidence of contamination:
    - Pre-strip gravels and clean soils were stockpiled to the west and south-east of the remedial excavation.
    - Stockpile C: consisted of materials with a slight hydrocarbon odour; they were stockpiled directly on the ground around the north-eastern side of the excavation.

- Stockpile D: likely contaminated materials (including deep 'fire' pit wastes) were stockpiled on plastic covered ground to the south-west of the excavation.
- Stockpile E: contaminated materials (based on strong odour) were stockpiled on plastic covered ground to the north of the excavation, near South Parade.

- Based on analytical results (refer to Appendix S) Stockpile E soils were initially classified as Level 3 for disposal. It was decided to bioremediate the soils by turning periodically. Subsequent inspection of the stockpiles showed that the odour had fully dissipated, and resampling results confirmed the material had bioremediated and was classified as Level 1 for disposal. Due to its prior contamination status, it was sent to landfill.

Trench 6:

- Excavated soils were stockpiled directly on the ground adjacent to the trench excavation.
- Contaminated soils were stockpiled to the north-east of Trench 6, pending classification for disposal.

Test Pit 17 – Lead Contamination Remedial Excavation:

- Excavated sooty soils were stockpiled on plastic north of the excavation.
- Based on total and leachable concentrations (Appendix S), the waste soils were classified as Level 4 contaminated waste soils.
- Approval was obtained from EPA and SWS to dispose of the Pb-impacted waste to Copping C-Cell.

Table 8: Waste Soil Details

TARGET ID	STOCKPILE ID	ESTIMATED VOLUME (m^3)	DISPOSAL VOLUME (t)	NO. SAMPLES COLLECTED	IB105 CLASSIFICATION*	EPA APPROVAL	DISPOSAL LOCATION	DISPOSAL DATE
Target 1 / AST 1 (T1)	Stockpile A	80	-	4	Level 1	No	Reused on Site	-
	Stockpile B	140	Refer to comments below	7	Level 2 (based on TPH C_{10}-C_{36})	Yes 23/03/18 (Appendix M)	Copping Disposal Site	2018, refer to comments below
	Dog Trailers (DT) x 2	12	Refer to comments below	2	Level 2 (based on TPH C_{10}-C_{36})	Yes 23/03/18 (Appendix M)	Copping Disposal Site	14/5/18
Target 3 / UPSS2 (T3)	Skip Bins x 2	10	Refer to comments below	2	Level 1 (not suitable for reuse due to evident odour)	Phone call with Liz Canning, EPA, March 2018	Copping Disposal Site	2018, refer to comments below

TARGET ID	STOCKPILE ID	ESTIMATED VOLUME (m^3)	DISPOSAL VOLUME (t)	NO. SAMPLES COLLECTED	IB105 CLASSIFICATION*	EPA APPROVAL	DISPOSAL LOCATION	DISPOSAL DATE
	Stockpile 1	6	-	1	Level 1	No	Reused on Site	-
	Stockpile 2	2	-	1	Level 1	No	Reused on Site	-
Target 14 / Main Work-shop (T14)	ACM-SP1	2	Refer to comments below	1	Asbestos containing waste	No	Copping Disposal Site	2018, refer to comments below
	SP-MET	1	Refer to comments below	1	Lead-impacted waste	With Stockpile D below	Copping Disposal Site	2018, refer to comments below
TP10 (grid location)	Stockpile C	90-100	132.64	4	Level 1 (not for reuse due to prior H/C impact)	No	Copping Disposal Site	19/11/2019
	Stockpile D	200	Refer to comments below	5	Level 2 (based on Hg, Zn, BaP & TPH C_{10}-C_{36})	Yes 03/7/18 (Appendix M)	Copping Disposal Site	2018, refer to comments below
	Stockpile E (samples E1 & L3-12.9.18)	28	Refer to comments below	1 – 1/6/18 1 – 12/9/18	Initially Level 3, bio-remediated to Level 1	No	Copping Disposal Site	2018, refer to comments below
Trench 6	TR6-SP1	6	Refer to comments below	1	Level 2 (based on TPH C_{10}-C_{36})	Yes 26/9/18 (Appendix M)	Copping Disposal Site	2018, refer to comments below
TP17 (grid location)	MS	90	138.18	4 (+ Dup) – total concentration 1 – leachability (composite)	Level 4 (based on lead leachability)	Yes 8/3/19 (Appendix M)	Copping C-Cell	1/5/2019
TOTAL WASTE SOILS TAKEN OFF SITE		579 m^3 (estimated) – equates to around 700 t	524.56 t					

* Based on analytical results presented in Appendix S.

Shading signifies soil was suitable for and has been reused on Site – the amounts are therefore not included in the total waste soils taken offsite.

Detailed reconciliations and reviews of waste disposal docket quantities and dates of the documentation provided by SMC (Appendix H and N) have been carried out by COVA. Due to the logistics of waste loading and transport it has not been possible to reconcile all dockets against waste sources listed above. Instead an overall disposal reconciliation has been done which shows that:

- The amounts of Level 4 waste disposed to Copping C-cell are as expected;
- The amounts of Level 2 (including ACM containing soil) waste disposed to Copping landfill are as expected; and
- The amounts of Level 1 (previously hydrocarbon contaminated) waste soils disposed to Copping are possibly short of what was expected in term of tonnage. This is likely due either to missing tip dockets or the difficulty in reconciling loads and sources. However, given these soils were classified as Level 1 soils from an analytical perspective, this is not considered to be of significant concern, even if some of the soils were not disposed to landfill. The soils were not considered suitable for reuse due to prior hydrocarbon impacts, but they were suitable as cover material on a landfill.

Other Wastes:

Other wastes disposed offsite included:

- UPSS tank: initially taken to the new SMC works depot, then removed on 28/2/2018; Gas free certificate provided; washout water disposed of by Northern Fuel Maintenance;
- UPSS waste water: SMC documentation states: UPSS waste water was drained into an open top poly tank. The tank was secured at the SMC Glenelg Street Council depot. Once most of the liquid had evaporated, the remaining product (oily sludge) was disposed at the oil recovery station of the Council Oatlands Waste Transfer Station.
- UPSS bowser and piping: were removed from Site.
- AC pipe (referred to as 'FC' piping): State-Wide Earthworks, 13/6/2019 + *The Certificate of Final Inspection – Demolition works* (refer to Appendix N).

5.9 SAMPLING METHODOLOGY

Sampling was aimed at determining potential environmental and human health risks from soil and groundwater present on Site to establish whether the Site land is suitable for the proposed redevelopment.

All samples were transported directly to the National Association of Testing Authorities (NATA) accredited Analytical Services (ALS, Accreditation No. 825) (primary samples) or Eurofins (Accreditation No. 1261) (QA/QC samples) laboratories for analyses using NATA-certified methodologies under chain of custody (COC) conditions. All samples were delivered for analysis within the prescribed holding times for each parameter.

Sample locations and details are provided in the Sample Register in Appendix I.

Sample locations are illustrated on Figures 3 to 15 (Appendix A) and photographs are provided in Appendix O.

The laboratory COC and Sample Receipt Notifications are provided in Appendix P and Appendix Q respectively.

5.9.1 SOIL SAMPLING

Rationale for sampling locations was based on the following:

- Investigating target areas of potential contamination;
- Investigating remaining areas via grid sampling.

Grid sampling density was based on an overall Site area of 6,000 m^2 and the minimum number of sampling points required for site characterisation based on detection of a circular hotspot using a square grid (Table E1 of AS4482.1-2005). Grid sampling included a total of 19 test pit locations.

- The northern half of 68 High St (title 148205/1) required 5 grid locations (based on an area of around 500 m^2);
- A area that had initially been earmarked for residential sub-division, but is now planned to be incorporated in the aquatic centre development, required 6 to 7 grid locations (based on an area of around 1,250 m^2); and
- The remainder of the Site required 11 - 13 grid locations (based on an area of around 4,250 m^2).

Samples at identified target locations of potential contamination were additional to the grid sampling locations. Soil samples for each area are summarised in Table 5. The strategy for each target area was as follows:

- T1 – AST: One test pit was to be excavated; it was immediately apparent that diesel contamination was present, and that remedial works would need to be undertaken; these are outlined in Section 5.5.2. Once the remedial excavation had reached its vertical and lateral extents, validation sampling was undertaken from the base of each wall and along the floor of the excavation at approximately 5 m spacings, or less where additional validation confirmation was needed.
- T2 – UPSS1: an excavator was used to dig trenches from west to east to try and intersect the UPSS or backfill for the UPSS if it had been removed. Four trenches were dug, without unearthing the former UPSS, but an area of evident backfill was noted. Soil sampling then followed the general UPSS pit sampling pattern of one sample at the base of each wall and one from the base of the pit. The excavator facilitated access to each sampling location.
- T3 – UPSS2: after the UPSS, pipework and bowser were removed, clean soils and dirty soils stockpiled separately, ground bedrock samples were taken from the base of each wall and one from the base of the pit which was in sandstone. Grab samples were taken from the stockpiles, dirty waste soils and backfill sands.
- T4 – vehicle wash bay: after the concrete had been removed from the bay, a shallow pit was left. One soil sample was taken at the base of each wall and one from the base of the pit.
- T5 – truck service shed: after removal of the thick concrete used in the service pit bay, a deep and wide pit was left. One soil sample was taken at the base of each wall and one from the base of the pit. In addition, three samples were taken from the footprint of the former shed located on the northern end of the truck service shed.
- T6 – former pesticide and oil store: two shallow soil grab samples were taken in the footprint of the old store.
- T10 – pesticide / herbicide store: a grid test pit TP12, was located adjacent to the target. The test pit was sampled at 3 depths.
- T11 – 1993 diesel spill: 8 test pits were dug along the estimated path of the spill, which was discussed and confirmed on Site with Craig Whatley (SMC) who remembered the spill. Each pit was sampled at two depths,

one near surface, beneath new red gravel hardstand, and the deeper sample at the base of the pit, on natural profile.

- T13 – unconfirmed UPSS3: a range of trenches were dug to try and locate the possible UPSS. A steel pipe was found and followed, but no tank was located. Soil samples were taken along the shallow trenches at intervals of approximately 5m.
- T14 – Main Workshop: four shallow soil samples were taken in a grid pattern within the footprint of the former workshop. One sample returned an elevated Pb concentration and a small remedial excavation was carried out as outlined in Section 5.5.2.
- T15 – Original workshop (pre 1970s): several test pits, boreholes and trench samples were taken either side of the C.T. Fish building, since access to the building footprint could not be provided.

Soil sampling in other areas was carried out as follows:

- 1 sample per 5 m of trench length;
- 1 sample per 1 m depth or per change in material;
- 1 sample per 25 cubic metres of waste soil, or per segregated stockpiled material;
- 1 validation sample per segregated stockpile or per 5 m of stockpile footprint.

With the exception of three open auger drill holes bored to the west of the C.T. Fish building, within the public park, all other excavation works were conducted with the aid of excavators. A large excavator was used where greater capacity and depth reach was required, e.g. for UPSS2 (Target T3) decommissioning and for part 1 and part 2 hydrocarbon (diesel) remedial works. A smaller excavator was used for shallower and smaller excavations such as test pits and trenches.

Test pits and trenches allowed for good visual inspection of the soil profile and enabled any identified contamination to be visually followed and removed. Test pits and trenches were generally excavated to sandstone bedrock. Bedrock was generally encountered at depths of between 0.5m to 1m. Samples were obtained from varying depths within the profile to characterise the soils, focusing in particular on any fill materials present, while avoiding any new and clean red gravel hardstand at surface. Generally, two sample depths were targeted at each location.

Soil samples were grabbed directly from the test pits profile with a clean pair of single-use nitrile gloves for each sample and were also compacted within the laboratory-supplied jars (suitable for the analytes to be tested), filled to the maximum practicable and immediately sealed, labelled, logged and placed on ice in a chiller box. A second sample from each location was placed into a snap-lock bag and screened for volatiles using a PID. The profile in each test pit was logged and the test pit logs are attached in Appendix J.

Test pits were backfilled with their own excavated material unless visible or odorous contamination was identified. Where remedial works were undertaken, the resulting excavations were generally left open, if safe to do so, or were backfilled with clean Site gravel due to safety or access requirements (e.g. UPSS2 tank decommissioning pit). Excavations were left open to provide profile and bedrock depth information to the construction contractor and due to future excavations planned as part of the development.

5.9.2 WATER SAMPLING

Surface water samples were collected opportunistically from the following locations after rainfall:

- Grid location 6 (TP6) – accumulated rainwater in the base of the excavation; and
- Target location 3 (T3) - accumulated rainwater in the base of UPSS2 excavation.

A water sample was also obtained from the waste water which drained from UPSS2 immediately after it was removed from the pit. As mentioned above, UPSS2 was emptied of diesel in December 2017, and left empty by SMC until decommissioning in February 2018. It is likely that the tank was filled with water by vandals in the intervening period.

Water samples were obtained directly into the laboratory-supplied bottles (suitable for the analytes to be tested), filled to the maximum practicable and immediately sealed, labelled, logged and placed on ice in a chiller box.

Sample details are provided on the Sample Register (Appendix I).

Groundwater sampling methods are discussed in the WCC Drilling and Groundwater Sampling Report (WCC 2018b) attached in Appendix L.

5.9.3 DECONTAMINATION PROCEDURES

The following decontamination procedures and cross-contamination mitigation procedures were used during sampling:

- Excavation and sampling works were generally undertaken from the likely least contaminated locations to the likely more contaminated locations.
- All samples were collected using single-use nitrile gloves which were changed after each sample.
- All samples were collected into new, laboratory-supplied jars and bottles.
- The excavator bucket was cleaned by hitting the bucket on the ground and scraping off any residual soils after each test pit investigation. Water hosing was used between pits where soils remained stuck to the bucket; this seldom occurred, and was mostly due to intersection of sticky, uncontaminated natural clays.
- The open flight auger used to drill three boreholes was scraped clean after each borehole.
- No evidence of cross-contamination was noted when reviewing soil sample results of samples taken from test pits and boreholes excavated in sequence.
- No other reusable sampling equipment was used.

WCC decontamination (refer to Appendix L):

No decontamination or rinsates were required for the soil and groundwater sampling of MW1, as:

- Only one well was drilled on the day and the KMR rig was clean on arrival; and
- Low flow sampling was used for groundwater samples and new polycarbonate tubing was used.

5.9.4 FIELD SCREENING PROTOCOLS

Soil:

The following soil physical properties were recorded in the field and are documented in the Sample Register (Appendix I) and on the test pit and borehole logs (Appendix J). These properties included:

- Sample location (GPS coordinates and location description);
- Depth of sample;
- Soil type (sand, silt or clay) and soil grain size (fine or coarse);
- Description (colour, texture, moisture, odour);
- Nature (fill, reworked natural material, residual/natural material (i.e. undisturbed)); and
- Assessment of volatile organic compounds using a PID.

Photographs were taken at each location and representative images have been compiled in Appendix O.

Water:

The following water physical properties were recorded in the field and are documented in the Sample Register (Appendix I). These properties included:

- Sample location (GPS coordinates and label);
- Depth of sample (for groundwater, refer to WCC report in Appendix K);
- Description (turbidity, colour, odour).

5.9.5 SAMPLING DEVICES AND EQUIPMENT

The following sampling devices were used:

- Excavator;
- Excavator-mounted open-flight auger;
- PID – supplied by Thermofisher, Imbros and HydroTerra and calibrated prior to use. The calibration certificates are provided in Appendix R. Note that a PID was only used where volatile organic compounds were expected to occur;
- Single use nitrile gloves;
- Laboratory supplied jars and water receptacles; and
- GPR, operated by AJ Water and Leak Detection.

5.9.6 SAMPLE HANDLING PROCEDURE

All samples were uniquely identified, and sample containers were appropriately labelled. Samples information was recorded on the Sample Register (Appendix I), borehole logs and test pit logs (Appendix J). Once samples were collected and sealed in the appropriate receptacles, they were placed in bubble wrap sleeves within the portable chiller box filled with ice. The chiller boxes were picked up by TasFast Couriers, on the day of sampling or the following day, for rapid transport to the relevant laboratory in Melbourne.

A COC form was completed, signed, dated and submitted to the relevant laboratory with the samples. The COCs were signed by the laboratories upon receipt of the samples.

All samples were delivered for analysis within the prescribed holding times for each parameter. Upon arrival at the laboratory, the temperature and integrity of the samples and containers was recorded, and samples were immediately transferred to the laboratories' refrigerated storage facilities prior to commencement of extraction and analyses. Two soil samples in the first batch (31/1/2018) were found to have taken in ice melt-water. This can happen if the jar lids are not tight enough, or the threads are clogged with soil particles. The relevant locations were resampled on 6/2/2018 and submitted for testing; these included locations: TP6-02 and TP9-02.

The ALS and Eurofins COC forms are attached in Appendix P.

The ALS and Eurofins Sample Receipt Notifications are attached in Appendix Q.

5.9.7 SAMPLE CONTAINER AND SEAL TYPE

All samples collected were placed immediately into laboratory-supplied receptacles suitable for the analytes to be tested. All bottles were labelled and tightly sealed with minimal headspace, then placed on ice in portable chiller boxes. Sample container requirements are provided in Table 9.

Table 9: Sample Container Requirements

ANALYTICAL PARAMETER	SAMPLE CONTAINER	PRESERVATION USED	HOLDING TIME
SOIL			
BTEXN & TPH (C_6-C_9) / TRH (F1)	1 x 150mL glass jar Teflon liner	Ice	7-14 days
TPH (C_{10}-C_{40}) / TRH (F2-F4), PAH & naphthalene	1 x 150mL glass jar Teflon liner	Ice	14 days
Phenols	1 x 150mL glass jar Teflon liner	Ice	14 days
Heavy metals	1 x 150mL glass jar Teflon liner	Ice	180 days
Herbicides / pesticides	1 x 150mL glass jar Teflon liner	Ice	14 days
Cyanide	1 x 150mL glass jar Teflon liner	Ice	14 days
PCB	1 x 150mL glass jar Teflon liner	Ice	14 days
Fluoride	1 x 150mL glass jar Teflon liner	Ice	28 days
ACM (bulk sample)	Heavy duty plastic bag	None	None
ACM (fibres)	Small zip-lock bag	None	None

ANALYTICAL PARAMETER	SAMPLE CONTAINER	PRESERVATION USED	HOLDING TIME
WATER			
BTEXN & TPH (C_6-C_9) / TRH (F1)	Pair of 40 mL amber glass vial with Teflon lined septa (must fill with zero head space)	Sulphuric acid / ice	7-14 days
TPH (C_{10}-C_{40}) / TRH (F2-F4), PAH & naphthalene	100 mL amber glass bottle with Teflon lined cap	Ice	7 days
PAH	100 mL amber glass bottle with Teflon lined cap	Ice	7 days
Heavy metals	60 mL plastic bottle (red/green label) filtered in the field	Ice	180 Days

6. ANALYTICAL RESULTS

6.1 GUIDELINE CRITERIA

A key aspect of the assessment of analytical results involved a Tier 1 Risk Assessment, which entails comparing the laboratory-reported concentrations of CoPC against the applicable guideline criteria. Relevant and applicable guideline criteria are presented in the top section of the results summary tables in Appendix S.

6.1.1 SOIL

Soil analytical results were compared against available appropriate criteria published in the following guidelines. The criteria are also used as thresholds that help inform whether further investigation or risk assessment is required:

- For soil remaining on-site –ASC NEPM; and
- For off-site disposal of waste or contaminated soil –IB105.

The '*General Business'* zone is considered to be equivalent to the commercial / industrial land use setting in ASC NEPM. Commercial / industrial health-based screening levels (HSLs), health-based investigation levels (HILs), ecological screening levels (ESLs) and ecological investigation levels (EILs) have been selected to assess the soil analytical results for this Site investigation.

Since the Site future use areas will include: Community Purpose and associated park areas, other criteria have also been used to assess soil results in these areas. 'Community Purpose' is assessed under a similar use as commercial / industrial, since human exposure time-frames and context are similar. Other criteria are:

- Community purpose and park areas (i.e. northern half of the Community Centre lot, and western part of the Aquatic Centre (labelled as 5 in Figure 2, Appendix A), have also been compared to Recreational and Open Space HILs/HSLs/EILs/ESLs.

Given the location of the Site, the Areas of Ecological Significance criteria are not considered applicable.

6.1.2 WATER

Water analytical results were compared against available criteria published in the following guidelines:

- ASC NEPM, which refers to:
    - Australian and New Zealand Environment and Conservation Council 2000 – *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC); and
    - Australian National Health and Medical Research Council 2011 (updated August 2018) – *Australian Drinking Water Guidelines* (ADWG).

ANZECC trigger values relate to surface water environments, as opposed to groundwater, and therefore an exceedance in a groundwater sample concentration does not necessarily imply ecological harm. Furthermore, the values are necessarily conservative as they are intended as triggers for further investigation; they do not consider background concentrations or site-specific conditions.

6.2 ANALYTICAL RESULTS

Analytical results are summarised in Appendix S. The results have initially all been compared to commercial / industrial criteria. Relevant sub-set of the results for samples taken in the proposed future park areas has also been compared to recreational / open space criteria.

Sampling locations are shown in Figures 3 to 15 (Appendix A).

The ALS and Eurofins laboratory Certificates of Analysis are provided in Appendix T.

7. DISCUSSION OF RESULTS

7.1 SOIL RESULTS – ENTIRE SITE AREA

Discussion of soil results against commercial / industrial criteria (i.e. for General Business or Community Purpose zoning) is provided below. Analytical results are summarised in Appendix S. All soil sampling results are shown; results for soils which are no longer on Site due to remedial excavation works are shaded grey and are not generally discussed below when assessing suitability of Site soils against Site use criteria.

7.1.1 PID

Field PID readings are provided on the Sample Register (Appendix I). Site soils PID readings ranged from 0 ppm to 1.4 ppm, which is considered very low and indicates absence of volatile organic compounds. The PID results are supported by field olfactory observations.

7.1.2 ODOURS

The main odours of note were:

- Diesel fuel contamination in soils during remedial excavation works. Diesel, and degraded fuel contamination do not typically report detectable volatile organic compounds;
- Sooty odours within the workshop building footprint, in the interpreted former blacksmith's wastes; and
- Foul odours associated with sundry wastes in the deep circular pit excavated during remedial works near the sewage pipe (refer to Figure 8, Appendix A).

All odorous soils encountered during Site works were removed and disposed off-site as part of the remedial excavations.

7.1.3 STAINING

Green staining was noted in fuel-impacted soils, most of which have been removed during remedial excavation works. However, some soils, that did not report elevated hydrocarbon concentrations, or significant odours, still showed slight green staining. It is likely that the staining is from fuel dye, which may be more persistent than the hydrocarbons, which break down relatively rapidly in well oxygenated, near-surface soils. Testing for pesticides and herbicides was initially undertaken in green-blue stained soils, but results were below laboratory LORs.

7.1.4 HEAVY METALS

The majority of Site soil samples were tested for 15 metals. The main exceptions were hydrocarbon remedial excavation validation samples which were either tested for Pb only, or no metals.

Two samples, T14-03 and TP17-01 reported Pb concentrations in excess of the Pb commercial / industrial HIL; both were within the workshop building footprint and were associated with sooty soils removed as part of the Pb remedial excavation (refer to Figure 14, Appendix A).

None of the other samples tested for soils remaining on Site exceeded any applicable commercial / industrial HIL.

Five of the 117 samples tested for soils remaining on Site (shaded dark yellow in the tables of results) exceeded the calculated Zn added contaminant limit (ACL) of 280 mg/kg Zn, used in lieu of commercial / industrial EIL. The exceedances ranged from 340 to 809 mg/kg. The exceedances are located across various areas of the Site and do

not appear to be associated with any particular location. ACL's are a conservative guideline limit, as they should be added to a background concentration.

A histogram analysis of Zn data for soils that remain on Site (120 samples) shows that the bulk of Site soils samples (over 100 samples) have concentrations within the 2.5 to 222.5 mg/kg range. The remaining 12 soil samples have concentrations in excess of 222.5 mg/kg. An average background concentration is estimated conservatively by calculating half the maximum (111.25), rounded down to 100 mg/kg. When adding the ACL to the conservative estimated background concentration, the EIL becomes:

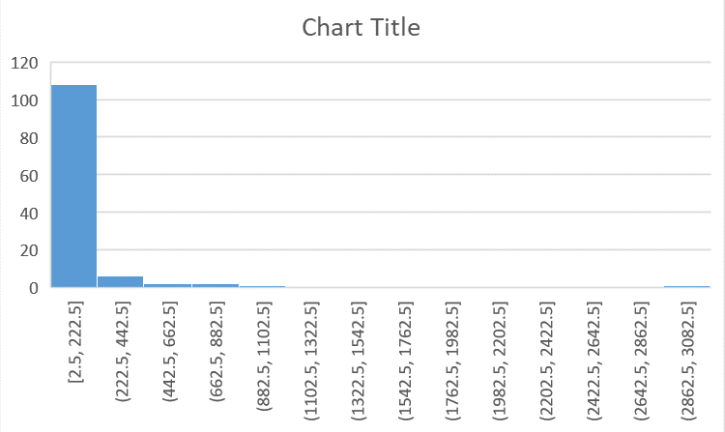
Background concentration + ACL = EIL

100 mg/kg + 280 mg/kg = 380 mg/kg

Four soil results on Site exceed the calculated EIL. These exceedances are localised and surrounded by soils which meet the Zn EIL (380 mg/kg). As such these isolated exceedances are not expected to pose an ecological risk; furthermore, the areas will either be paved, or planted with lawn. The calculated Zn average concentration for the investigation data set is 198 mg/kg, which is below 280 mg/kg calculated ACL and below 380 mg/kg calculated EIL, and supports the assessment of low ecological risk of Zn concentrations across the Site. Refer to Figure 16, Appendix A for locations of residual localised exceedances.

Heavy metals are not considered to represent an unacceptable risk to human health or ecological values at the investigated locations during any excavation works or on-going commercial / industrial use of the Site.

Chart 1 – Histogram of Zn Concentrations of Soils Remaining on Site



7.1.5 POLYCYCLIC AROMATIC HYDROCARBONS

Of the 105 soil samples tested for PAHs, only two samples reported concentrations above the LORs. The two samples were taken as validation samples in the base of the Target T1 AST remedial excavation. Samples T1-13 and T1-14 were taken at 1.4 and 1.5m depth respectively, in the centre and in the north of the base of the excavation within sandstone bedrock. The concentrations were 1.5 and 0.7 mg/kg respectively, which are below the applicable total PAH HIL commercial / industrial criterion of 4,000 mg/kg. All benzo(a)pyrene (BaP) concentrations were reported below the LOR and the BaP commercial / industrial EIL of 1.4 mg/kg.

PAHs are not considered to represent an unacceptable risk to human health or ecological values at the investigated locations during any excavation works or on-going commercial / industrial use of the Site.

7.1.6 TOTAL RECOVERABLE HYDROCARBONS

Loamy samples were typically tested after silica-gel clean-up, to avoid over-reporting due to naturally-occurring hydrocarbons in organic-rich soils. These samples are shown with light yellow shading in the tables of results.

162 samples of soils that remain on Site were tested for TRH. All results were either below LORs, or within the applicable commercial / industrial HIL for F1 and F2 fractions; there are no HILs for F3 and F4 fractions.

Only two of the 162 soil samples of soils remaining on Site, reported F2 fractions concentrations in excess of the applicable commercial / industrial ESL of 170 mg/kg for coarse or fine soils. Samples T1-13 and T1-14 were taken at 1.4 and 1.5m depth respectively, in the centre and in the north of the base of the excavation within sandstone bedrock. The concentrations were 430 and 270 mg/kg respectively.

Although slight staining and residual odours were noted at the base of the remedial excavation, it was decided that given the depth was over 1.4m in sandstone bedrock, and given the area was expected to be within the aquatic centre footprint, the localised TRH F2 ESL exceedances were considered low risk for ecological values as the remaining areas met ESL criteria. The Site TRH F2 average is 55 mg/kg, which is below the 170 mg/kg commercial / industrial ESL. Refer to Figure 16, Appendix A for locations of residual localised exceedances.

TRHs are not considered to represent an unacceptable risk to human health or ecological values at the investigated locations during any excavation works or on-going commercial / industrial use of the Site.

7.1.7 VOLATILE MONOCYCLIC AROMATIC HYDROCARBONS

162 samples of soils that remain on Site were tested for BTEX and an extra 14 for naphthalene (the N of BTEXN).

All BTEXN results were reported at concentrations below the LORs and hence below the commercial / industrial HSL criterion for benzene (irrespective of soil type); there are no HSL criteria for the other TEXN parameters.

Reported BTEXN concentrations were also below the commercial / industrial ESLs (irrespective of grain size).

BTEXN are not considered to represent an unacceptable risk to human health or ecological values at the investigated locations during any excavation works or on-going commercial / industrial use of the Site.

7.1.8 HERBICIDES & PESTICIDES

Only three target areas were tested for herbicides and pesticides; targets:

- T4 – truck wash, where herbicides and pesticides were loaded, or washed off;
- T6 – former pesticides / herbicides store; and
- TP12 due to green-blue staining and proximity to Target T10 – pesticides / herbicides store.

Of the eight samples tested, all samples reported concentrations below pesticides LORs, and one reported a concentration above herbicides LORs. Sample T6-02 reported 0.04 mg/kg of 2,4,5 Trichlorophenoxyacetic acid herbicides (abbreviated as 2,4,5-T). The concentration is within the commercial / industrial HIL for 2,4,5-T (5,000 mg/kg) and there are no commercial / industrial EIL criteria.

Herbicides and pesticides are not considered to represent an unacceptable risk to human health or ecological values at the investigated locations during any excavation works or on-going commercial / industrial use of the Site.

7.1.9 PHENOLS

Testing for phenols was requested for samples taken in fuel and chemical storage areas, truck service areas, the former diesel spill (T11) and hydrocarbon remedial excavations.

All soils tested for phenols reported concentrations below LORs and hence below commercial / industrial HILs; there are no commercial / industrial EIL or ESL criteria for phenols.

Phenols are not considered to represent an unacceptable risk to human health or ecological values at the investigated locations during any excavation works or on-going commercial / industrial use of the Site.

7.1.10 PCB, CYANIDE, FLUORIDE

PCB, cyanide and fluoride were only tested in samples from waste soil stockpile D, waste soils that included waste excavated from the deep circular waste pit (refer to Figure 14, Appendix A) and some blacksmiths' wastes and iron-mongery.

Concentrations were as follows:

- PCB concentrations were below the LOR and hence below the commercial / industrial HIL criterion. There are no EILs for PCBs;
- Cyanide concentrations were either below or at the LOR and hence below the commercial / industrial HIL criterion. There is no EIL for cyanide; and
- Fluoride concentrations ranged from below the LOR (<40 mg/kg) to 60 mg/kg; there are no HIL or EIL criteria for fluoride; nonetheless, the concentrations are considered very low.

PCBs, cyanide and fluoride are not considered to represent an unacceptable risk to human health or ecological values at the investigated locations during any excavation works or on-going commercial / industrial use of the Site.

7.2 SOIL RESULTS – RECREATIONAL / OPEN SPACE

For ease of reference a sub-set table has been created for all soil samples results within the Site; results shown in italics represent the results for samples taken within areas planned to be built upon by the aquatic centre building, roading or car parking, i.e. they are not within the proposed park areas, i.e. recreational, open space.

The table of results shows that:

- None of the TRH concentrations exceed the recreational HSLs.
- Six of the samples reported TRH F2 or F3 concentrations in excess of urban residential and public open space ESLs, of which only one sample, T4-04, is located within a proposed park / open space area, the other five locations are located within proposed future built footprints where ESLs have limited relevance. The TRH F3 concentration at location T4-04 was 300 mg/kg which is equal to the ESL for coarse fractions; the TRH F2 concentration was less than the LOR. The calculated average TRH F3 concentrations for samples within the proposed park areas is 114 mg/kg which is within the 300 mg/kg F3 fractions public open space ESL. TRH F3 fractions are not generally mobile and the localised low grade residual TRH contamination is unlikely to migrate and pose an ecological risk; the park areas will be covered with clean topsoil prior to being planted.
- BTEXN, PAH and phenols concentrations were either below LORs, or below applicable recreational HILs or urban residential and public open space EILs.

- Heavy metals concentrations in samples of soils that remain on Site were either below LORs or below recreational HILs. One sample, TP14-01, reported a Cu concentration in excess of the calculated Cu ACL for urban residential and public open space; this location is within the proposed future built footprint of the aquatic centre, where ecological values have low applicability. Eleven samples reported Zn concentrations in excess of the calculated Zn ACL for urban residential and public open space; seven of these samples were taken at locations situated within the proposed future built footprint of the aquatic centre where ecological values have low applicability. Four samples were taken at locations situated within proposed future park and open space areas. It should be noted that ACL's are a conservative limit, as they should be added to a background concentration. As noted in Section 7.1.4, an estimated background Zn concentration has been conservatively calculated as 100 mg/kg, so public open space EIL for the Site would be:

  Background + ACL = EIL

  100 mg/kg + 180 mg/kg = 280 mg/kg

  When comparing to the calculated EIL, only six soil concentrations exceed the public open space EIL, and of those only three of those samples are located within a proposed park area, the other are beneath the proposed built footprints where ecological criteria have limited relevance. In addition, the exceedances are localised and surrounded by soils which meet the Zn public open space ACL and EIL. As such these isolated exceedances are not expected to pose an ecological risk. The calculated average Zn concentration for soil samples taken within the proposed park areas is 72 mg/kg, which is less than the calculated ACL and EIL of 180 mg/kg and 280 mg/kg respectively. Furthermore, the areas will be covered with clean topsoil and surface materials may even be scraped off prior to being planted with lawn. Refer to Figure 16, Appendix A for locations of residual localised exceedances.

- Where samples were tested, pesticide and herbicide concentrations were either below LORs or below recreational HILs, and urban residential and public open space EILs where available.

The CoPC tested in soils at the locations and times of testing within the proposed future park / open space areas, are not considered to represent an unacceptable risk to human health or ecological values during any excavation works or potential future outdoor recreational use of those areas (shown as area number 5 in Figure 2, Appendix A).

7.3 WATER RESULTS

Three sets of water samples were tested during the investigation:

- UPSS2 tank wastewater sample;
- Grab samples of rainwater in TP6 and the UPSS2 tank pit; and
- Groundwater from MW1.

UPSS2 tank wastewater was contaminated with hydrocarbons and low concentrations of heavy metals. SMC stored the water in an open-top IBC receptacle which was kept at the current SMC depot and left to evaporate. The remaining sludge was disposed as contaminated waste (refer to Section 5.8).

Accumulated rainwater in TP6 and UPSS2 pit reported detectable but low TRH F3 fractions and low metals concentrations. The similarity in metals concentrations suggest that the metals in rainwater are from the Site profile and represent 'background' concentrations. UPSS2 tank pit reported slightly higher TRH F3 concentrations than TP6, likely due to minor spillages of UPSS2 tank water during removal of the tank. The low TRH F3 concentrations detected in TP6 would be expected in rainwater runoff from a site on which trucks and other machinery have been operating. No odour or sheen was noted in either sample on the day.

Analytical results from the uncontrolled groundwater sample taken on the day of drilling (5/7/2018) are not discussed here, as the sampling timing and method was not best practice and the sample quality may have been compromised.

Two groundwater samples from MW1 were obtained by low flow sampling on 12/7/2018, one at the water table (6.1 – 6.4m) and one opposite the fractures at 10.4m. No hydrocarbons were detected, i.e. TRH, BTEXN and PAHs were all below LORs. Phenols were below LORs. As, Cr, Pb and Hg concentrations were all below LORs. Cd, Cu, Ni and Zn in one or both samples exceeded ANZECC fresh water trigger values for protection of 80% of species. Other than Ni, all concentrations were within the ADWG. The Ni concentration was around 1.5 to 2 times the ADWG of 0.02 mg/L. When comparing metals concentrations in groundwater to those in the rainwater samples, they are of a similar magnitude and it is likely that the metals are derived from the sandstone bedrock and are representative of background concentrations. The lack of hydrocarbon contamination and mostly low metals concentrations in groundwater, the depth to groundwater, and the lack of groundwater bores for drinking water purposes and distance to Dulverton Rivulet means that the ecological and human health risks posed by groundwater beneath the Site is low.

7.4 ASBESTOS

Asbestos was tested in several ways:

- Three fragments were sampled from the Site surface, two of which, ACM1 and ACM2, tested positive for asbestos minerals. These were located on the southern side of the workshop building, in fill material.
- Eight fill bulk soil samples were taken to carry out sieving and test any fragments for presence of asbestos, and eight parallel 50g samples was taken to test for asbestos fibres. None of the eight samples reported any asbestos fragments or fibres signifying that the fill was unlikely to contain asbestos.

AC piping was identified in several locations, although no formal testing was carried out:

- In Trench D (refer to Figure 10, Appendix A),
- In the TP10 hydrocarbon remedial excavation (refer to Figure 8, Appendix A).

In both cases, the AC piping was removed from the excavations and was wrapped in sturdy plastic. It was disposed to Copping Landfill as asbestos-containing waste (refer to Section 5.8).

7.5 UPSS – TARGET 3 SUMMARY OF RESULTS

Soil and water results have been discussed in earlier sections. For ease of reference, information pertaining to sampling results associated with the decommissioning of the diesel UPSS in February 2018 is summarised in this section.

7.5.1 SOILS

Five samples were taken from the UPSS remedial excavation, four wall and one base sample. One sample was taken from the base of the bowser pad. No fuel line sample was taken as the bowser was adjacent to the tank and the line was above the tank. Four waste soil samples were taken from the backfill sand and other backfill soils around the UPSS.

Soils were tested for TRH, BTEXN, PAH and phenols. All results were below LORs with the exception of sample T3-bowser base which reported 170mg/kg F3 TRH fractions, which meets site F3 ESL; ASC NEPM does not present any HSL for F3 fractions.

Some waste soils were noted as being odourous and were stockpiled separately from those with no odours. Odourous soils were disposed to landfill as Level 1 fill materials. Non-odorous and tested excavated soils were used as backfill in the UPSS excavation. Waste disposal is discussed in Section 5.8.

7.5.2 WATER

Two water samples were taken, one from unauthorised water added to the tank, and one from rainwater in the UPSS pit, several weeks after decommissioning.

Water samples were tested for TRH, BTEXN, PAH, phenols and 15 NEPM metals. The Tank Water sample reported elevated hydrocarbon concentrations and several metals concentrations exceedance ANZECC 95% of species protection. The water was collected into an open top intermediate bulk container (IBC). The water was left to evaporate, and the residual sludge was disposed as detailed in Section 5.8. T3-rainwater sample was collected opportunistically after recent rains and from the then open UPSS excavation. BTEXN, PAH and phenols were all reported to be less than LORs. TRH F3 concentration was reported as 860µg/L, and other TRH fractions were reported to be less than LORs. There are no TRH F3 water criteria in ANZECC, or ASC NEPM, or other adopted criteria. Metals concentrations were similar to those from another sample taken from another test pit (TP6-rainwater) and are expected to represent background rainwater concentrations after contact with the site profile.

7.5.3 GROUNDWATER

As no contamination was detected in the UPSS pit, no groundwater investigations were recommended. Minor contamination occurred into the backfill materials due to tank water spillage during removal of the underground tank, however this minor contamination did not appear to have impacted on the pit dug in sandstone bedrock.

Due to extensive contamination encountered associated with Target T1 (the former diesel AST), one groundwater well was installed downgradient of the contamination, which was also downgradient of the UPSS from Target T3. Two groundwater samples were taken in July 2018 from monitoring well MW1. Neither sample reported any detections above LORs of TRH, BTEXN, PAH or phenols. Eight metals were tested, and their concentrations were consistent with metals concentrations in the surface water samples.

7.5.4 CONCLUSIONS

The UPSS has been decommissioned by removal. Based on:

- the condition of the walls and floor of the pit observed during UPSS decommissioning (refer to photographs in Appendix O),
- on analytical results of pit soils and clean backfill soils, and
- on analytical results of surface and groundwater,

it is considered that the remedial excavation has been effectively validated and there are no unacceptable risks to any Site or offsite receptors from the former storage of diesel at Target T3. No management measures are required.

7.6 SUMMARY OF IDENTIFIED CONTAMINATION

Contamination that was identified on Site included:

- Hydrocarbons – essentially diesel contamination;
- Pb contamination – associated with sooty wastes from historical blacksmith activities on the Site; and

- AC piping.

Extensive remedial excavation works have taken place to remove the identified contamination. Additional investigative trenches have tested potential extensions of mobile contaminants (i.e. diesel fuel). One small area was identified and remediated in and adjacent to Trench 6. Validation sampling was carried out.

It is however possible that:

- small pockets of residual hydrocarbon contamination;
- segments of AC piping; and
- areas of sooty and Pb-impacted blacksmith wastes

could be encountered beyond or between investigated locations. Given the density of remedial works, trenching and investigations, the likelihood of encountering any of these is considered to be low. Nonetheless, to address the low residual risk, it is recommended that a Contaminated Soil Protocol be included in the Construction Management Plan, or similar, which will be used by the construction contractor. This is discussed further in Section 8.7.

7.7 STATISTICAL ANALYSIS

Basic statistics have been included at the bottom of each of the results tables in Appendix S, including:

- Number of data point,
- Number of detects (i.e. data points with results above the LOR),
- Minimum and Maximum.

Average concentrations have been calculated where exceedances of criteria are reported; they have been included at the bottom of the tables and have been discussed in earlier sections.

7.8 QUALITY ASSURANCE, QUALITY CONTROL AND DATA VALIDATION

Details of the QA/QC procedures are provided in Appendix U.

- Section 1 – Field QA/QC;
- Section 2 – Laboratory QA/QC; and
- Section 3 - QA/QC Evaluation.

The ALS Quality Control Report and Interpretive Quality Control Report are provided in Appendix V. The Eurofins QA/QC results are provided in the Eurofins Certificate of Analysis (Appendix T).

A review of all the results and the associated QA/QC processes has been undertaken. Notable QA/QC deviations are outlined below for duplicate/triplicate RPDs and rinsates. Nonetheless, on the basis of the overall QA/QC information documented in related appendices and after assessment of any deviations from the accepted QA/QC limits, the results are considered to be representative of the concentrations of contaminants in the soil and surface water at the specified depths at the time of sampling. It is recommended that soil data results be assessed statistically rather than as individual local values, since repeatability of TRH and metals concentrations is poor.

Rinsates:

- Detection of heavy metals on rinsates taken from the digger / excavator bucket on several occasions (31/1/2018, 1/2/2018, and to a lesser extent 1/11/2018); and
- Detection of TRH F3 fractions on the excavator bucket rinsate on 2/2/2018;

These rinsate results suggest that despite cleaning the excavator bucket between test pits, there may have been a small amount of cross-contamination between test pits. Test pit soil samples were taken from fresh faces and undisturbed soil from each test pit and the effect of possible cross-contamination from the excavator bucket is expected to be undetectable compared to the amount of undisturbed material placed in each jar.

Duplicates / Triplicates:

- Repeatability between triplicate samples, i.e. interlab duplicates between ALS and Eurofins is patchy for TRH and metals concentrations above LORs;
- Repeatability between duplicate samples, i.e. blind intralab duplicates within ALS, are also patchy for TRH and metals concentrations above LORs.

The results suggest that TRH and metals non-detects are accurate as repeatability is good where results are below LORs; whereas detectable TRH and metals concentrations are less reliable and vary due to soil heterogeneity and possibly laboratory method variability. This means that statistical analysis of large data sets where occasional exceedances are reported, is a valid approach to even out patchy soil results. Average values have been calculated and used to assess overall data sets for TRH F2 and F3, and Zn concentrations where applicable.

8. CONCEPTUAL SITE MODEL

A CSM has been created for the Site based on the findings from the DSI. The CSM is a representation of an environmental system defining the possible contaminants, their source(s) and the possible pathways of exposure to human and environmental receptors.

The CSM for the Site is detailed below and is summarised in Table 10 and Section 8.6.

8.1 IDENTIFIED CONTAMINANTS AND SOURCES

As discussed in Section 7.6, remedial works have removed:

- Primary source of contamination (i.e. UPSS2),
- All encountered AC piping,
- Any identified areas of sooty and Pb-impacted blacksmith wastes, and
- Hydrocarbon (diesel) contamination.

Samples of soils that remain on Site show:

- No exceedances of human health HIL or HSL commercial / industrial criteria; and
- No exceedances of human health HIL or HSL recreational criteria.

Identified residual contamination on Site includes:

- TRH F2 concentrations (samples T1-13 and T1-14) at 1.4 and 1.5m respectively which exceed the commercial / industrial ESL.
- Four locations which reported Zn concentrations in excess of the Zn calculated EIL (380 mg/kg; refer to Section 7.1.4); the locations include: TP7-01, TP14-01, Fill 2, and OPbVal01.

Within the proposed park areas, residual exceedances of recreational and public open space criteria include:

- TRH F3 concentration at T4-03 which is at the recreational ESL guideline level.
- Three locations reported Zn concentrations above the public open space calculated Zn EIL; the locations include: Fill 2, OPbVal01 and OPbVal04.

Although the likelihood is considered to be low, there is potential for the following residual contamination to be encountered during Site earthworks:

- Small pockets of residual hydrocarbon contamination;
- Segments of AC piping; and
- Small areas of sooty and Pb-impacted blacksmith wastes.

8.2 SENSITIVE RECEPTORS

The following sensitive receptors for identified and potential residual contamination are likely to be:

- Workers during Site earthworks;
- Site workers and users, i.e. the general public;
- Onsite biota, mostly underground organisms at present, though birds and pets (dogs) may frequent the Site once grass and plantings are present, and the Site has been completed and opened to the public;
- Offsite users and residents, on neighbouring properties and users downgradient and downwind of the Site, e.g. along the surface water route, or within the downgradient groundwater catchment, or in a downwind direction; and
- Offsite biota, on neighbouring properties, downgradient of the Site, e.g. along the surface water route, or within the downgradient groundwater catchment.

8.3 MIGRATION PATHWAYS

The main migration pathways for each of the identified contaminants are:

TRH and Zn in soil:

- Soil / sediment: physical movement (via erosion, wind or earthmoving), or leaching to surface water or groundwater; contact with organisms and humans;
- Surface water: movement downgradient, percolation to soil and groundwater, dispersion and precipitation of solids (contaminated soils and sediments); contact with organisms and humans; and
- Groundwater: movement downgradient, discharge to surface water, precipitation to soils under differing geochemical conditions; contact with organisms and humans.

Asbestos in AC pipes:

- Physical movement as small fragments in waste soil;
- Physical movement as asbestos particles in the event that AC pipe has been fractured and has released bonded asbestos; and
- Physical movement as identified pipe.

8.4 EXPOSURE ROUTES

For contamination to present a hazard to human health and/or the environment, there must be a source of contamination, a release mechanism, a receptor and a migration pathway, which allow the contaminant to move from the source to the point of contact (exposure route).

Potential exposure routes include:

- Direct contact with contaminated soil, surface water or groundwater.
- Ingestion of contaminated soil, surface water, groundwater.
- Inhalation of airborne contaminants (e.g. asbestos fibres, soil dust).

- Surface water and groundwater flow to surrounding surface water ecosystems.
- Erosion and dispersion of excavated contaminated soils through air and water.

8.5 DATA GAPS

In creating the CSM the following data gaps are noted:

- No background soil metals concentrations have been determined; and
- No background groundwater metals concentrations have been determined.

8.6 CSM

Table 10 provides the CSM risk assessment for Site CoPCs for identified sensitive receptors and identified potential exposure routes. All risks have been assessed as either 'not applicable' (N/A) or 'low'. N/A means that the pathway is incomplete, and exposure is considered very unlikely. Low means that based on investigation results and remedial works, the risk of exposure is low and contamination impacts are unlikely.

Red text included in the CSM outlines suggested management measures during earthworks, which can be included in a Contaminated Soil Protocol which would be part of the Construction Management Plan, or similar, which will be used by the construction contractor.

8.7 MANAGEMENT MEASURES

On the basis of the DSI results and the CSM, there are a number of residual risks identified, all of which pertain to potential for exposure during earthworks. As such, the recommended management measures listed below should be included in a Contaminated Soil Protocol which should form part of the Construction Management Plan, or similar, which will be used by the construction contractor during Site works: i.e.:

- aquatic centre, and
- park/open space works.

Recommended management measures include:

- Any sooty soils and blacksmith wastes encountered during earthworks, should be stockpiled separately;
- Any odorous or hydrocarbon-impacted soils encountered during earthworks, should be stockpiled separately;
- Any waste soils not reused on Site should be stockpiled separately from any other potentially contaminated soils (e.g. sooty, or hydrocarbon-impacted);
- All stockpiled soils must be contained to prevent erosion, tested and classified for offsite disposal;
- Testing of waste soils should include CoPCs: eight heavy metals and TRH, as a minimum; the analytical suite should include any other analytes deemed appropriate for the likely contamination if any other is observed;
- Runoff water from unsealed areas may have Pb and other metals at concentrations in excess of ANZECC 80% species protection, and could carry sediments or earthmoving machinery oils, fuels, etc.; all stormwater runoff during Site works should be contained to prevent runoff from Site; and

- Any AC piping or other potential ACM fragments encountered during earthworks, should be stored in sturdy plastic and disposed as asbestos containing waste to a facility approved to receive asbestos.

It is also noted that proposed park areas (refer to Figure 2, Appendix A) will be covered with clean topsoil prior to being planted.

8.8 SAFETY

The main safety risks identified on Site relate to the following identified and remediated contamination:

- Pb-contaminated sooty soils at concentrations which exceeded commercial / industrial HIL;
- Hydrocarbon-contaminated soils; and
- AC piping and two pieces of bonded ACM fragments.

Remedial works have removed contamination encountered, however there is a low likelihood that small pockets of contamination could be encountered during earthworks.

If left undisturbed, the Site soils present a low human health risk to Site users and low ecological risks under the proposed uses (Figure 2, Appendix A).

Any disturbance to the Site soils (i.e. earthworks of any sort) should be managed to minimise risks, via a specific management plan, as mentioned in Section 8.7.

Table 10: Conceptual Site Model

RECEPTOR	KNOWN COPC	POTENTIAL EXPOSURE MEDIA AND ROUTES			
		SOIL	AIR	SURFACE WATER	GROUNDWATER
Earthworks contractors	Pb	Low: Pb < HIL D; if sooty wastes are encountered, they will be stockpiled, contained, tested and classified for offsite disposal	Low: Pb < HIL D; if sooty wastes are encountered, they will be stockpiled, contained to prevent dust generation, tested and classified for offsite disposal	N/A: No surface water on Site except after rain if excavations are present; Pb in stormwater from unsealed areas > ADWG; ponded water should be managed during earthworks	N/A: Excavations are unlikely to reach groundwater; and Pb concentrations in groundwater < LOR and ADWG
	TRH	Low: TRH < HSL D	Low: TRH < HSL D	N/A: No surface water on Site except after rain if excavations are present; TRH in stormwater < ADWG	N/A: Excavations are unlikely to reach groundwater and groundwater results show no TRH impact
	AC	Low: AC piping is bonded, non-friable and unlikely to release asbestos fibres; building contractor will follow containment and offsite disposal procedures for any AC piping encountered during earthworks	Low: AC piping is bonded, non-friable and unlikely to release asbestos fibres; building contractor will follow containment and offsite disposal procedures for any AC piping encountered during earthworks	N/A: No surface water on Site except after rain if excavations are present; bonded AC piping is strongly bonded and fibres are unlikely to be generated by contact with stormwater; ponded water will be managed during earthworks	N/A: Excavations are unlikely to reach groundwater, and asbestos fibres would not migrate in groundwater
Site workers and users (public)	Pb	Low: Pb < HIL D and < HIL C	Low: Pb < HIL D and < HIL C	N/A: No exterior surface water on Site other than stormwater runoff from sealed and grassed areas after completion of redevelopment	N/A: groundwater will not be accessible due to depth and Pb concentrations in groundwater are < LOR
	TRH	Low: TRH < HSL D and < HSL C	Low: TRH < HSL D and < HSL C	N/A: No exterior surface water on Site other than stormwater runoff from sealed and grassed areas after completion of redevelopment	N/A: groundwater will not be accessible due to depth and groundwater results show no TRH impact
	AC	N/A: not likely to come into contact with any residual AC piping, and AC piping is bonded, non-friable; building contractor will follow containment and offsite disposal procedures for any AC piping encountered during earthworks	N/A: not likely that any residual AC piping would be exposed to air after building completion, and AC piping is bonded, non-friable; building contractor will follow containment and offsite disposal	N/A: No exterior surface water on Site other than stormwater runoff from sealed and grassed areas after completion of redevelopment	N/A: groundwater will not be accessible due to depth, and asbestos fibres would not migrate in groundwater

RECEPTOR	KNOWN COPC	POTENTIAL EXPOSURE MEDIA AND ROUTES			
		SOIL	AIR	SURFACE WATER	GROUNDWATER
			procedures for any AC piping encountered during earthworks		
Onsite biota	Pb	Low: residual Pb concentrations < EIL	Low: residual Pb concentrations < EIL, hence low likelihood of Pb-impacted particulates	Low as no surface water on Site except after rain if excavations are present; runoff water from unsealed areas has Pb and other metals > ANZECC 80% species protection – ponded water should be managed during earthworks; No exterior surface water on Site other than stormwater runoff from sealed and grassed areas after completion of redevelopment	Low: Pb in groundwater < LOR and < ANZECC criteria
	TRH	Low: Average TRH < ESL	Low: Average TRH < ESL	Low as no surface water on Site except after rain if excavations are present; runoff water could carry sediments and earthmoving machinery oils– ponded water should be managed during earthworks; No exterior surface water on Site other than stormwater runoff from sealed and grassed areas after completion of redevelopment	Low: TRH were not detected in groundwater; groundwater is at >5m depth and won't be intersected during earthworks; groundwater is not accessible to most sub-soil biota and only accessible to large deep rooted vegetation which are typically hardy
	AC	N/A: biota are not likely to come into contact with any residual AC piping, and AC piping is bonded, non-friable; building contractor will follow containment and offsite disposal procedures for any AC piping encountered during earthworks	N/A: not likely that any residual AC piping would be exposed to air after building completion, and AC piping is bonded, non-friable; building contractor will follow containment and offsite disposal procedures for any AC piping encountered during earthworks	N/A: No exterior surface water on Site other than stormwater runoff from sealed and grassed areas after completion of redevelopment	N/A: groundwater will not be accessible due to depth, and asbestos fibres would not migrate in groundwater
Offsite residents and public	Pb	Low: Pb < HIL A and < HIL C; any waste soils will be tested and classified prior to offsite disposal	Low: Pb < HIL A and < HIL C; any waste soils will be contained to prevent dust generation and tested and classified prior to offsite disposal	N/A: No surface water on Site except after rain if excavations are present; Pb in stormwater from unsealed areas > ADWG; Site will be sealed or grassed after development; ponded water should	N/A: groundwater is not be accessible due to depth and Pb concentrations < LOR and hence ADWG

RECEPTOR	KNOWN COPC	POTENTIAL EXPOSURE MEDIA AND ROUTES			
		SOIL	AIR	SURFACE WATER	GROUNDWATER
				be managed during earthworks to prevent offsite runoff	
	TRH	Low: TRH < HSL A and < HSL C	Low: TRH < HSL A and < HSL C	N/A: No exterior surface water on Site other than stormwater runoff from sealed and grassed areas after completion of redevelopment	N/A: groundwater is not be accessible due to depth; groundwater is not used in the area and there is reticulated water; and groundwater results show no TRH impact
	AC	N/A: not likely to come into contact with any residual AC piping, and AC piping is bonded, non-friable; building contractor will follow containment and offsite disposal procedures for any AC piping encountered during earthworks	N/A: not likely that any residual AC piping would be exposed to air after building completion, and AC piping is bonded, non-friable; building contractor will follow containment and offsite disposal procedures for any AC piping encountered during earthworks	N/A: No exterior surface water on Site other than stormwater runoff from sealed and grassed areas after completion of redevelopment; No AC piping at surface; AC piping is bonded	N/A: groundwater will not be accessible due to depth, and asbestos fibres would not migrate in groundwater
Offsite biota	Pb	Low: Pb < EIL and any waste soils will be classified prior to offsite disposal	Low: Pb < EIL and any waste soils will be classified prior to offsite disposal	Low as no surface water on Site except after rain if excavations are present; runoff water from unsealed areas has Pb and other metals > ANZECC 80% species protection – ponded water should be managed during earthworks to contain water onsite; No exterior surface water on Site other than stormwater runoff from sealed and grassed areas after completion of redevelopment	Low: Pb in groundwater < LOR and < ANZECC criteria
	TRH	Low: Average TRH < ESL, and any waste soils will be classified prior to offsite disposal	Low: Average TRH < ESL, and any waste soils will be classified prior to offsite disposal	Low as no surface water on Site, or immediately surrounding Site, except after rain if excavations are present; runoff water could carry sediments and earthmoving machinery oils– ponded water should be managed during earthworks; No exterior surface water on Site other than stormwater runoff from	Low: TRH were not detected in groundwater; groundwater is at >5m depth and is not accessible to most sub-soil biota and only accessible to large deep rooted vegetation which are typically hardy

RECEPTOR	KNOWN COPC	POTENTIAL EXPOSURE MEDIA AND ROUTES			
		SOIL	AIR	SURFACE WATER	GROUNDWATER
				sealed and grassed areas after completion of redevelopment	
	AC	N/A: offsite biota are not likely to come into contact with any residual AC piping from Site, and AC piping is bonded, non-friable; building contractor will follow containment and offsite disposal procedures for any AC piping encountered during earthworks	N/A: not likely that any residual AC piping would be exposed to air after building completion, and AC piping is bonded, non-friable; building contractor will follow containment and offsite disposal procedures for any AC piping encountered during earthworks	N/A: No exterior surface water on Site other than stormwater runoff from sealed and grassed areas after completion of redevelopment; No AC piping at surface; AC piping is bonded	N/A: groundwater will not be accessible due to depth, and asbestos fibres would not migrate in groundwater

LEGEND:
HIL / HSL D = HIL / HSL commercial / industrial land use (ASC NEPM)
HIL / HSL C = HIL / HSL recreational land use (ASC NEPM)
HIL / HSL A = HIL / HSL residential land use (ASC NEPM)
HIL = health investigation level
HSL = health screening level
EIL = ecological investigation level
ESL = ecological screening level
HSL = all fractions, F1, F2, F3 and F4
AC = asbestos cement
Pb = lead
TRH= total recoverable hydrocarbons
CoPC = contaminant of potential concern
ASC NEPM = National Environment Protection (Assessment of Site Contamination) Measure, 1999, as amended May 2013
ADWG = Australian Drinking Water Guidelines, 2011 (updated August 2018)
ANZECC = Australian and New Zealand Guidelines for Fresh and Marine Water Quality, 2000

N/A = not applicable; assessed as incomplete pathway, and hence no risk of impact from identified CoPC
Low = assessed as low risk of impact from identified CoPC
Red text = recommended management measures to manage risks during Site earthworks – summarised in Section 8.7

9. CONCLUSIONS AND RECOMMENDATIONS

9.1 CONCLUSIONS

The DSI (this report) demonstrated that the concentrations of CoPC in samples of soil that remain on Site, are not considered to represent an unacceptable risk to human health or ecological values during:

- On-going commercial use of the Site (i.e. proposed use as an aquatic centre);
- Outdoor recreational use of the Site within the proposed park / open space areas; or
- Excavation works across the Site.

Similarly, ecological and human health risks posed by groundwater beneath the Property are low.

Extensive remedial excavation works have taken place to remove identified contamination sources, including: UPSS; AC piping; diesel-impacted soils; Pb-impacted soils. Although the likelihood is considered to be low, there is potential for the following residual contamination to be encountered during Site earthworks (i.e. beyond or between investigation locations):

- Small pockets of residual hydrocarbon contamination;
- Segments of AC piping; and
- Small areas of sooty and Pb-impacted blacksmith wastes.

Any Site soil disturbance (i.e. earthworks of any sort) should be managed to minimise risks, via a specific management plan, as discussed in Section 9.3.

9.2 UPSS DECOMMISSIONING

The UPSS (Target T3) has been decommissioned by removal. Based on:

- the visually clean condition of the walls and floor of the pit observed during UPSS decommissioning (refer to photographs in Appendix O),
- on analytical results of pit soils and clean post decommissioning backfill soils, and
- on analytical results of surface and groundwater,

it is considered that the UPSS remedial excavation has been effectively validated and there are no unacceptable risks to any Site or offsite receptors from the former storage of diesel at Target location T3. No management measures are required.

9.3 RECOMMENDATIONS

On the basis of the DSI results (Section 7) and the CSM (Section 8), a number of residual risks pertaining to potential for exposure during Site earthworks have been identified. It is recommended that the below management measures be included in a Contaminated Soil Protocol which should form part of the Construction Management Plan, or similar, which will be used by the construction contractor during Site works: i.e. aquatic centre works; park/open space works.

Recommended management measures include:

- Any sooty soils and blacksmith wastes encountered during earthworks, should be stockpiled separately;
- Any odorous or hydrocarbon-impacted soils encountered during earthworks, should be stockpiled separately;
- Any waste soils not reused on Site should be stockpiled separately from any other potentially contaminated soils (e.g. sooty, or hydrocarbon-impacted);
- All stockpiled soils must be contained to prevent erosion, tested and classified for offsite disposal;
- Testing of waste soils should include CoPCs: eight heavy metals and TRH, as a minimum; the analytical suite should include any other analytes deemed appropriate for the likely contamination if any other is observed;
- Runoff water from unsealed areas may have Pb and other metals at concentrations in excess of ANZECC 80% species protection, and could carry sediments or earthmoving machinery oils, fuels, etc.; all stormwater runoff during Site works should be contained to prevent runoff from Site; and
- Any AC piping or other potential ACM fragments encountered during earthworks, should be stored in sturdy plastic and disposed as asbestos containing waste to a facility approved to receive asbestos.

It is also noted that proposed park areas (refer to Figure 2, Appendix A) will be covered with clean topsoil prior to being planted.

10. REFERENCES

Australian and New Zealand Environment and Conservation Council, 2000: Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC).

Australian National Health and Medical Research Council, 2011: Australian Drinking Water Guidelines, updated August 2018 (ADWG).

Cromer, W. C. (WCC 2018a). *Former Council Works Depot, Oatlands. Qualitative Groundwater Risk Assessment.* Unpublished report for COVA by William C Cromer Pty Ltd, 9 May 2018.

Cromer, W. C. (WCC 2018b). *Drilling and groundwater sampling, former Council Works Depot,* Oatlands. Unpublished report for COVA by William C Cromer Pty Ltd, 31 July 2018.

EPA Tasmania, 2018: Information Bulletin No. 105 *Classification and Management of Contaminated Soil for Disposal*, EPA Tasmania, 2018 (IB105).

EPA Tasmania, 2018: *Underground Petroleum Storage Systems: Decommissioning Assessment Report Requirements*, EPA Tasmania Technical Guideline, (UPSS1, July 2018).

EPA Tasmania, 2018: *Underground Petroleum Storage Systems: Decommissioning Assessment Sampling and Risk Assessment Requirements*, EPA Tasmania Technical Guideline, (UPSS2, July 2018).

NEPC, 2013: *National Environment Protection (Assessment of Site Contamination) Measure*, 1999, as amended May 2013 (ASC NEPM)

SEMF Pty Ltd, 2013: *Southern Midlands Council, 18 Church St. Oatlands – SMC Works Depot, Site History Report* (SEMF, June 2013).

SEMF, 2017: *Southern Midlands Council, Municipal Works Depot, Oatlands – Site History Report and Sampling Analysis and Quality Plan* (SHR & SAQP, 2017).

Standards Australia, 2005: AS 4482.1-2005, *Guide to the sampling and investigation of potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds*, Standards Australia, 2005.

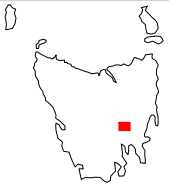
Standards Australia, 1999: AS 4482.2-1999, *Guide to the sampling and investigation of potentially contaminated soil, Part 2: Volatile compounds*, Standards Australia, 1999 (AS 4482.2-1999).

Appendix A – Figures

CERTIFICATE OF TITLE LEGEND

- (A) 68 HIGH STREET CT-148205/1)
- (B) 18 CHURCH STREET (CT-148207/1)
- (C) 70 HIGH STREET (CT-41274/3)
- (D) 18 CHURCH STREET (CT-46931/1)
- (E) 18 CHURCH STREET (CT-22710/1)

LOCATION PLAN



LEGEND

TITLE BOUNDARY

(A) LOT TITLE

18 CHURCH STREET - DETAILED SITE INVESTIGATION

FIGURE 1

PROPERTY LOCATION & LAYOUT

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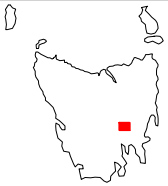
CERTIFICATE OF TITLE LEGEND

1. PUBLIC LAWN
2. COMMUNITY CENTRE (EXISTING USE)
3. PROPOSED AQUATIC CENTRE (BUILDING & INFRASTRUCTURE)
4. OPEN SPACE/PARK/OUTDOOR AREA



LEGEND

CURRENT TITLE BOUNDARY

INVESTIGATION BOUNDARY

1 SITE LOCATION I.D.

18 CHURCH STREET - DETAILED SITE INVESTIGATION

FIGURE 2

DSI BOUNDARY (THE SITE) & PROPOSED FUTURE LAND USES

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TARGETED LOCATIONS LEGEND

1. AST1 (REMOVED)
2. UPSS 1 (DECOMMISSIONED)
3. UPSS 2 (NON-OPERATIONAL, DECOMMISSIONED AS PART OF DSI)
4. VEHICLE WASH BAY (PESTICIDE LOADING) (DEMOLISHED)
5. TRUCK SERVICE SHED (DEMOLISHED)
6. OIL STORE (ORIGINAL)(+ PESTICIDE STORE) (DEMOLISHED)
10. PESTICIDE/HERBICIDE STORE (REMOVED)
11. 1993 DIESEL SPILL (T11)
13. UPSS 3 (UNCONFIRMED)
14. MAIN WORKSHOP (DEMOLISHED)
15. ORIGINAL WORKSHOP (DEMOLISHED EARLY 70's)

GRID SAMPLING & T11 TEST PITS - TP1, ETC.

BOREHOLES

MONITORING WELL

NOTE: SITES NOT LISTED IMPLIES NO TARGETED SAMPLING UNDERTAKEN IN THIS DSI, EITHER BECAUSE LOCATION IS OFF-SITE OR UNKNOWN.

LEGEND

TITLE BOUNDARY

INVESTIGATION BOUNDARY

1 TARGET LOCATION No.

18 CHURCH STREET - DETAILED SITE INVESTIGATION

FIGURE 3

TARGET AREAS, GRID SAMPLING & TARGET 11 LOCATIONS

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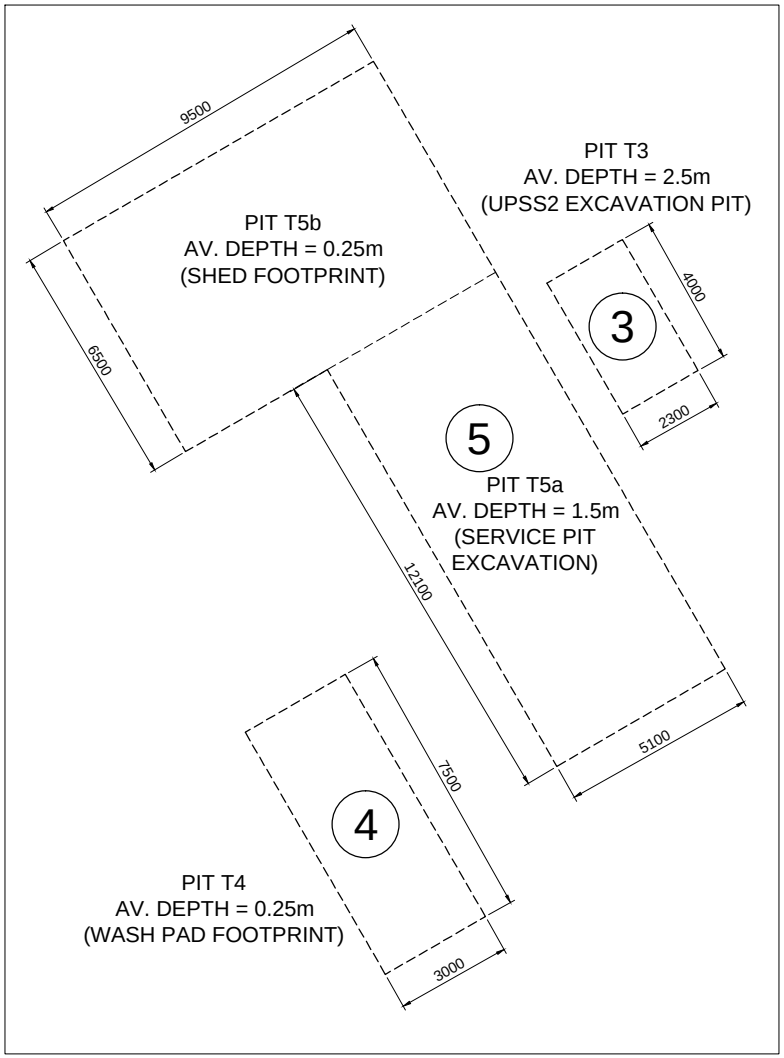
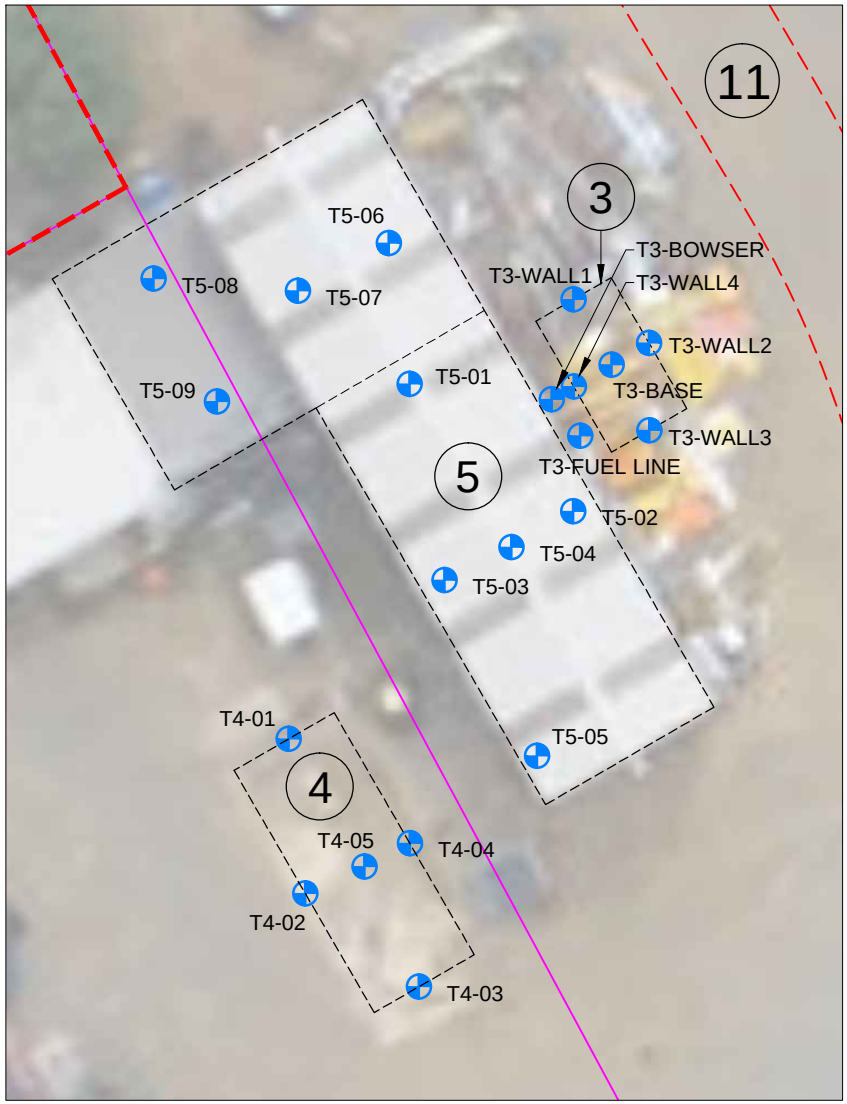
TARGETED LOCATIONS LEGEND

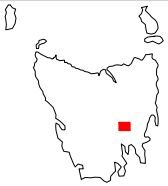
- (3) UPSS 2 (NON-OPERATIONAL, DECOMMISSIONED AS PART OF DSI)
- (4) VEHICLE WASH BAY (PESTICIDE LOADING) (DEMOLISHED)
- (5) TRUCK SERVICE SHED (DEMOLISHED)
- SOIL SAMPLE LOCATIONS



PIT DIMENSIONS



SAMPLING LOCATIONS FOR TARGET AREAS 3, 4 & 5



LEGEND

- TITLE BOUNDARY
- INVESTIGATION BOUNDARY
- (1) TARGET LOCATION No.

18 CHURCH STREET - DETAILED SITE INVESTIGATION

FIGURE 4

UPSS2 (T3), TRUCK WASH (T4) & TRUCK SERVICE (T5)

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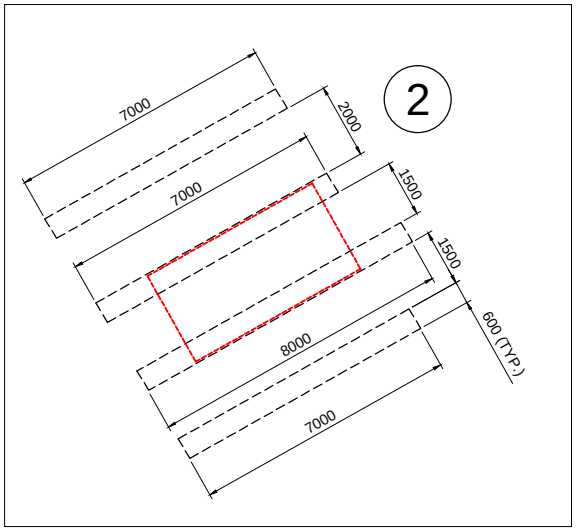
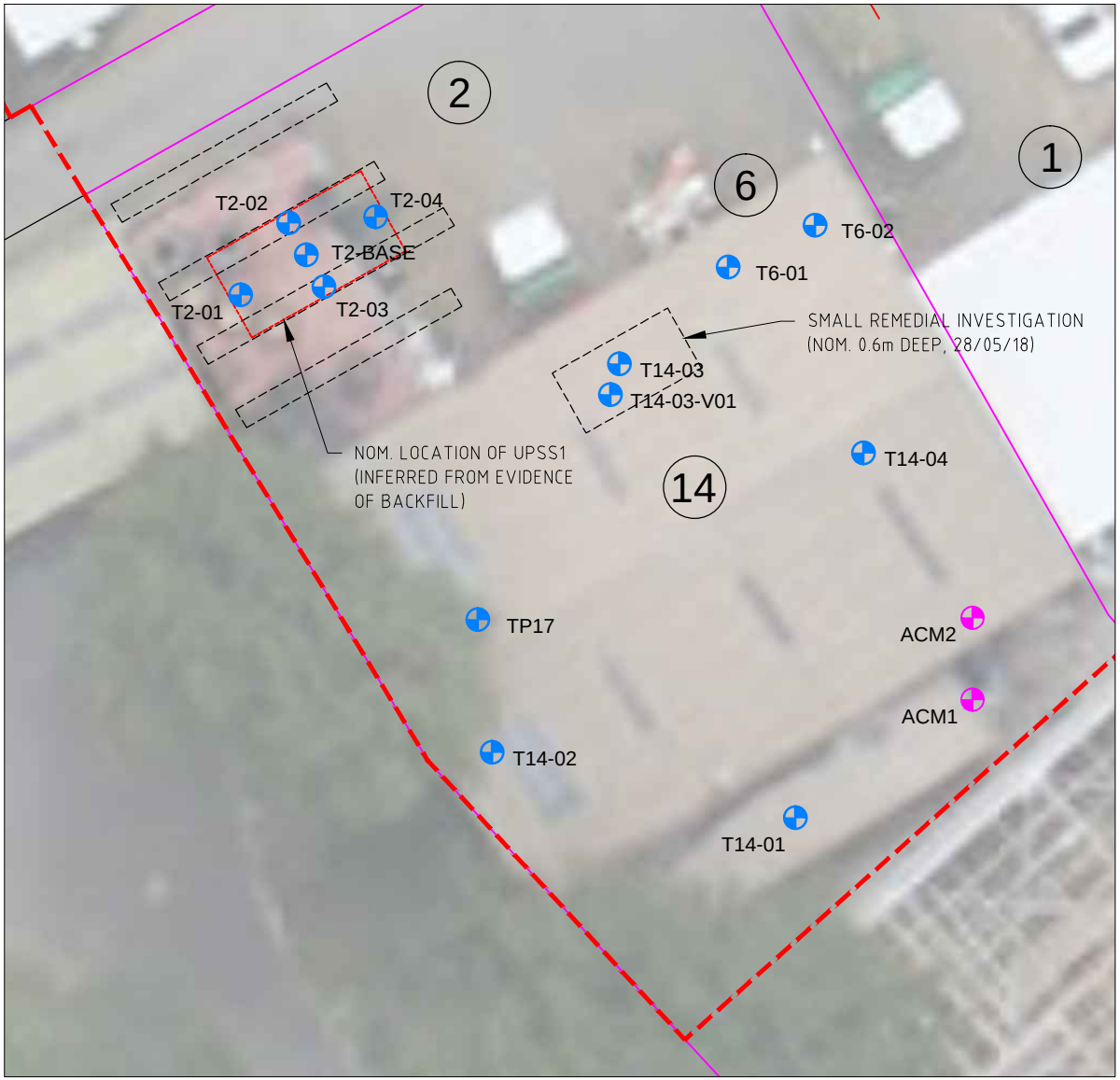


SAMPLING PIT DETAILS
AV. PIT DEPTH = 1.3m

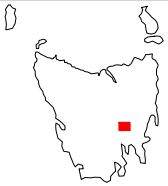
TARGETED LOCATIONS LEGEND

- (1) AST1 (REMOVED)
- (2) UPSS 1 (DECOMMISSIONED)
- (6) OIL STORE (ORIGINAL)(+ PESTICIDE STORE) (DEMOLISHED)
- (14) MAIN WORKSHOP (DEMOLISHED)
- SOIL SAMPLE LOCATIONS
- ACM FRAGMENT SAMPLE

NOTE: REFER TO FIGURE 14 FOR REMEDIAL WORKS IN THIS AREA.
REFER TO FIGURE 10 FOR ACM & FILL INVESTIGATIONS.



SAMPLING LOCATIONS FOR TARGET AREAS 2, 6 & 14
(FORMER UPSS, OIL STORE & WORKSHOP)



LEGEND
TITLE BOUNDARY
INVESTIGATION BOUNDARY
(1) TARGET LOCATION No.

18 CHURCH STREET - DETAILED SITE INVESTIGATION

FIGURE 5
UPSS1 SAMPLING (T2), OIL/PESTICIDE STORE (T6) & WORKSHOP (T14)

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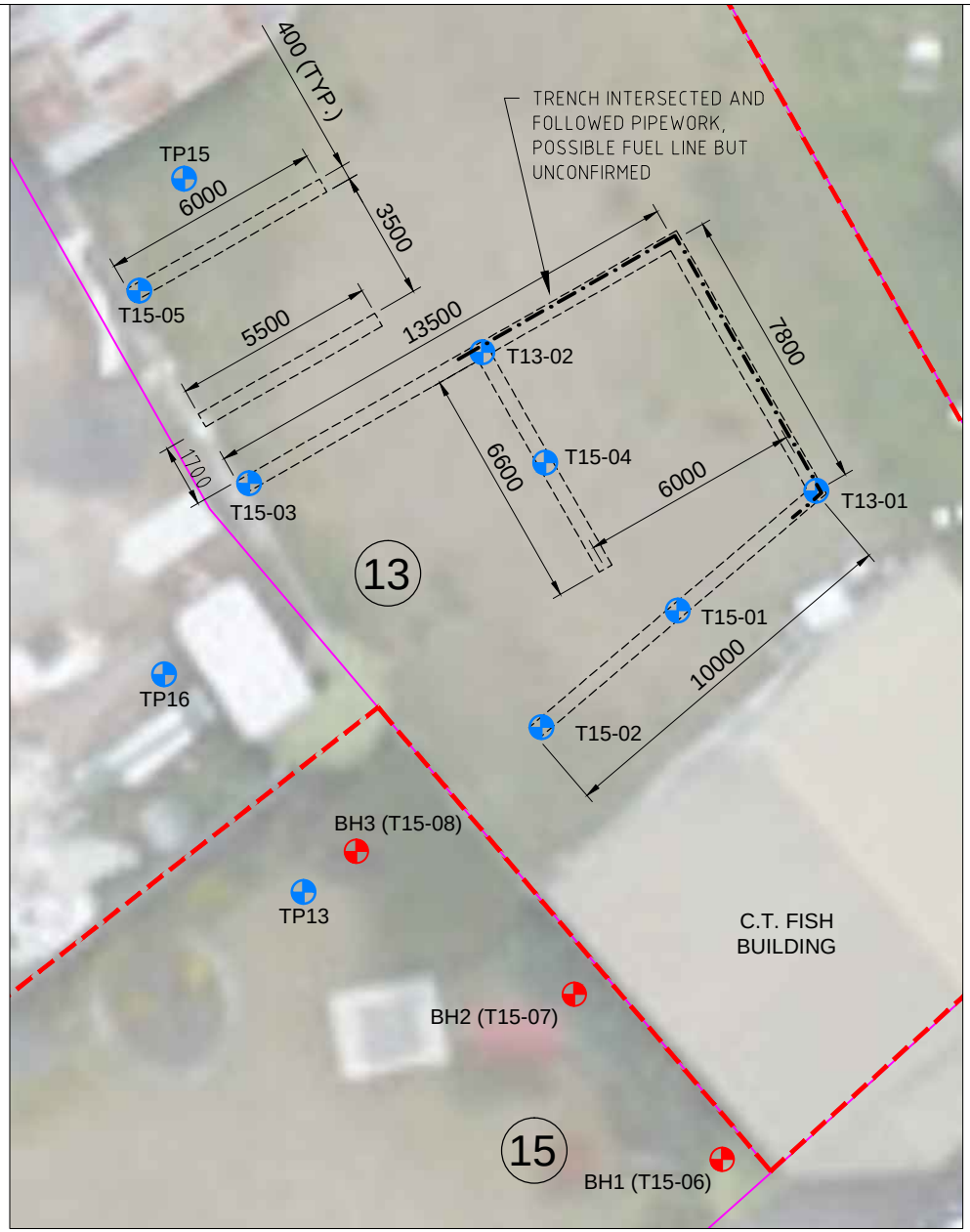
TARGETED LOCATIONS LEGEND

- (13) UPSS 3 (UNCONFIRMED)
- (15) ORIGINAL WORKSHOP (DEMOLISHED EARLY 70's)
- SOIL SAMPLING LOCATIONS
- BOREHOLES

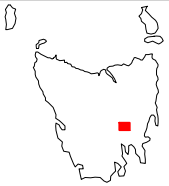
NOTE: TP13, BH1, BH2 & BH3 WERE LOCATED OUTSIDE THE INVESTIGATION FOOTPRINT DUE TO THE PRESENCE OF THE C.T. FISH BUILDING, AND IN ORDER TO TEST THE SOILS NEAREST THE BUILDING FOOTPRINT.



SAMPLING LOCATIONS FOR TARGET AREAS 13 & 15
(FORMER WORKSHOP AND POSSIBLE UPSS 3)

NOTE

ALL TRENCHES WERE DUG TO SANDSTONE BEDROCK, GENERALLY ENCOUNTERED AT 0.5m.



LEGEND
- TITLE BOUNDARY
- INVESTIGATION BOUNDARY
- (1) TARGET LOCATION No.

18 CHURCH STREET - DETAILED SITE INVESTIGATION

FIGURE 6

TARGETS 13 & 15 – POSSIBLE UPSS3 & FORMER WORKSHOP SAMPLING

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NOTES

"Axx" = 'CLEANER' WASTE SOIL STOCKPILES

"Bxx" = 'ODOROUS' WASTE SOIL STOCKPILES

"SW" = STORMWATER

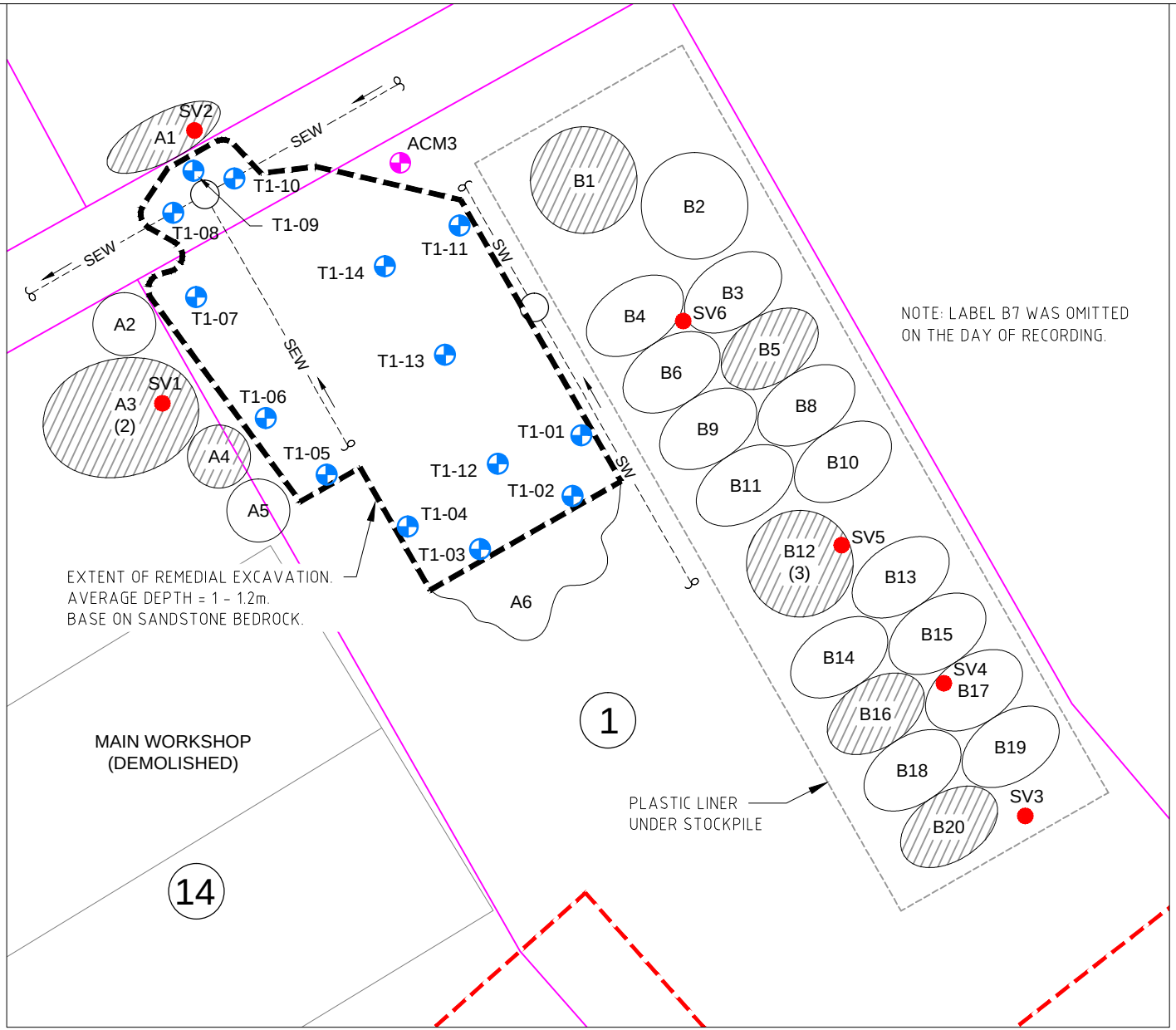
"SEW" = SEWER

T1-xx SOIL SAMPLING LOCATIONS

A1 STOCKPILE SAMPLED FOR WASTE SOIL CLASSIFICATION (1 SAMPLE PER STOCKPILE UNLESS OTHERWISE INDICATED)

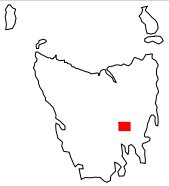
SVx STOCKPILE FOOTPRINT VALIDATION SAMPLE

ACMx POTENTIAL ACM FRAGMENT SAMPLE (NEGATIVE)



SAMPLING LOCATIONS FOR TARGET AREA 1

(FORMER DIESEL AST)



LEGEND

TITLE BOUNDARY

INVESTIGATION BOUNDARY

(1) TARGET LOCATION No.

18 CHURCH STREET - DETAILED SITE INVESTIGATION

FIGURE 7

TARGET 1 REMEDIAL EXCAVATION & STOCKPILE SAMPLING (PART 1)

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Stronger Together
1800 00 COVA
covathinking.com
ACN 117 492 814

Date: 8th AUGUST 2019
Prepared by: COVA Pty Ltd

Project Number: 4193.005

NOT TO SCALE

N

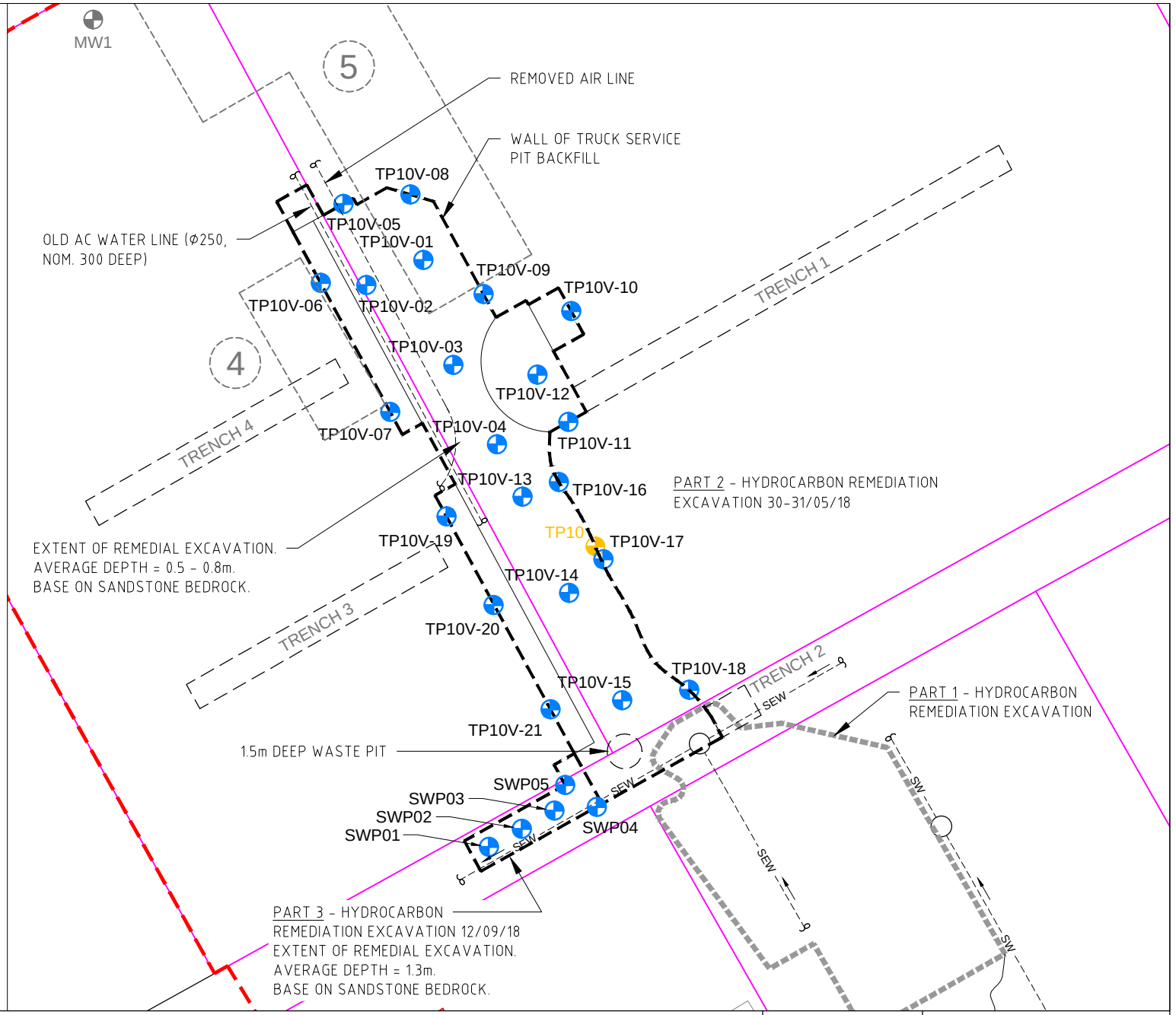
NOTES

"SW" = STORMWATER

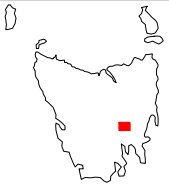
"SEW" = SEWER

TP10V-xx
VALIDATION SAMPLING LOCATIONS

TP10
ORIGINAL GRID SAMPLE LOCATION



SAMPLING LOCATIONS FOR TP10 & TARGET AREA 1 (PARTS 2 & 3)



LEGEND

TITLE BOUNDARY

INVESTIGATION BOUNDARY

1 TARGET LOCATION No.

18 CHURCH STREET - DETAILED SITE INVESTIGATION

FIGURE 8

TP10 & TARGET 1 REMEDIAL EXCAVATION VALIDATION SAMPLING (PARTS 2 & 3)

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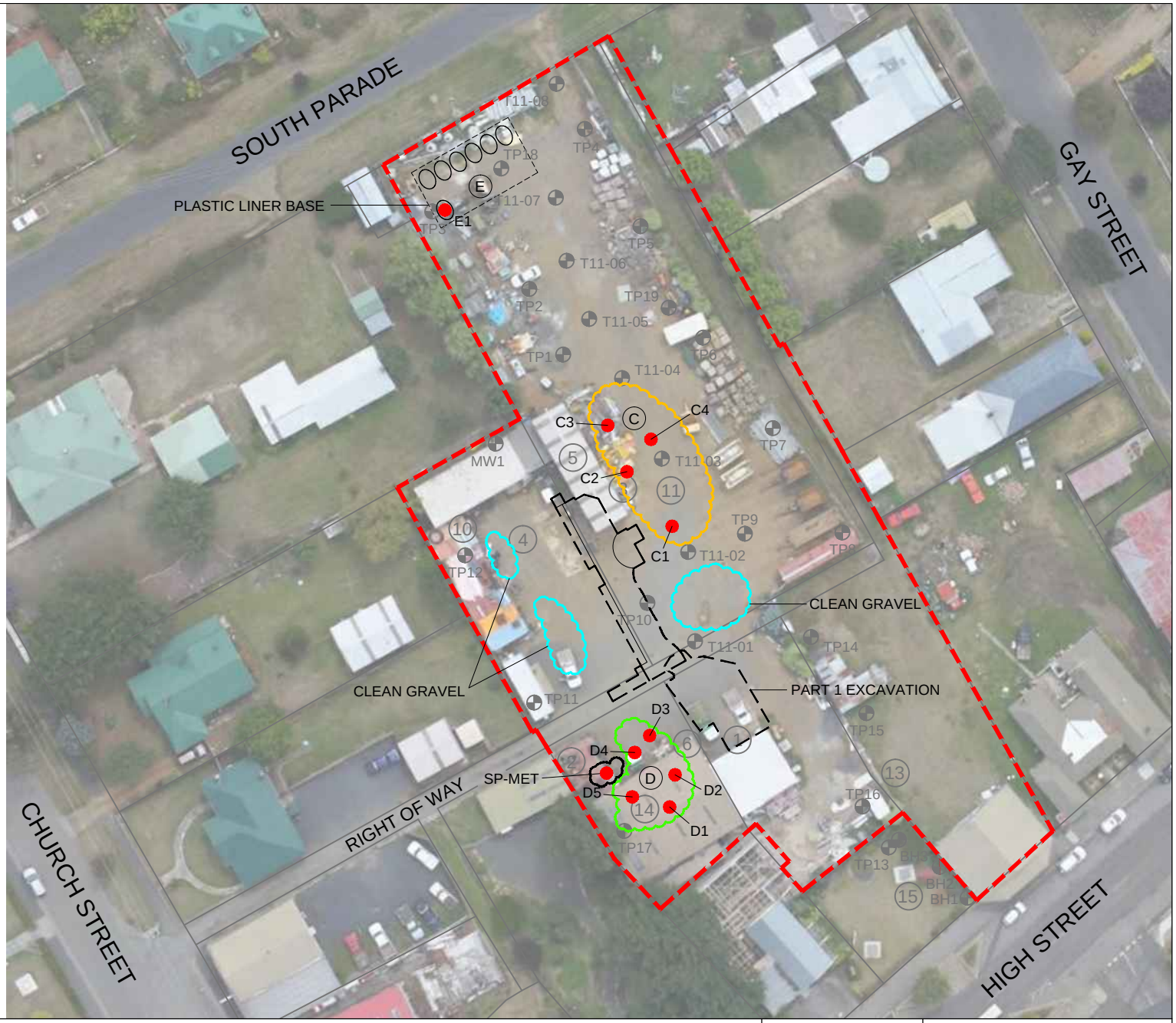
LEVEL OF HYDROCARBON CONTAMINATION @ 01/06/18 & CLASSIFICATION

- (C) LOW LEVEL (APPROX. 100m³ EXCAVATED);
  LEVEL 1 ⟶ COPPING.
- (D) MEDIUM LEVEL + OTHER WASTES (APPROX. 200m³ EXCAVATED);
  LEVEL 2 ⟶ COPPING B-CELL.
- (E) HIGH LEVEL (APPROX. 25m³ EXCAVATED);
  LEVEL 3 ⟶ BIOREMEDIATION ON SITE (SEPT 2018),
  LEVEL 1 ⟶ COPPING.
- ● STOCKPILE CLASSIFICATION SAMPLE

NOTE: CLEAN GRAVELS WERE FROM SURFACE SCRAPING DURING PRE-STRIPPING OF EXCAVATED AREA.



LEGEND

TITLE BOUNDARY

INVESTIGATION BOUNDARY

(1) TARGET LOCATION No.

18 CHURCH STREET - DETAILED SITE INVESTIGATION

FIGURE 9

PART 2 & 3 HYDROCARBON REMEDIATION WASTE SOIL STOCKPILES

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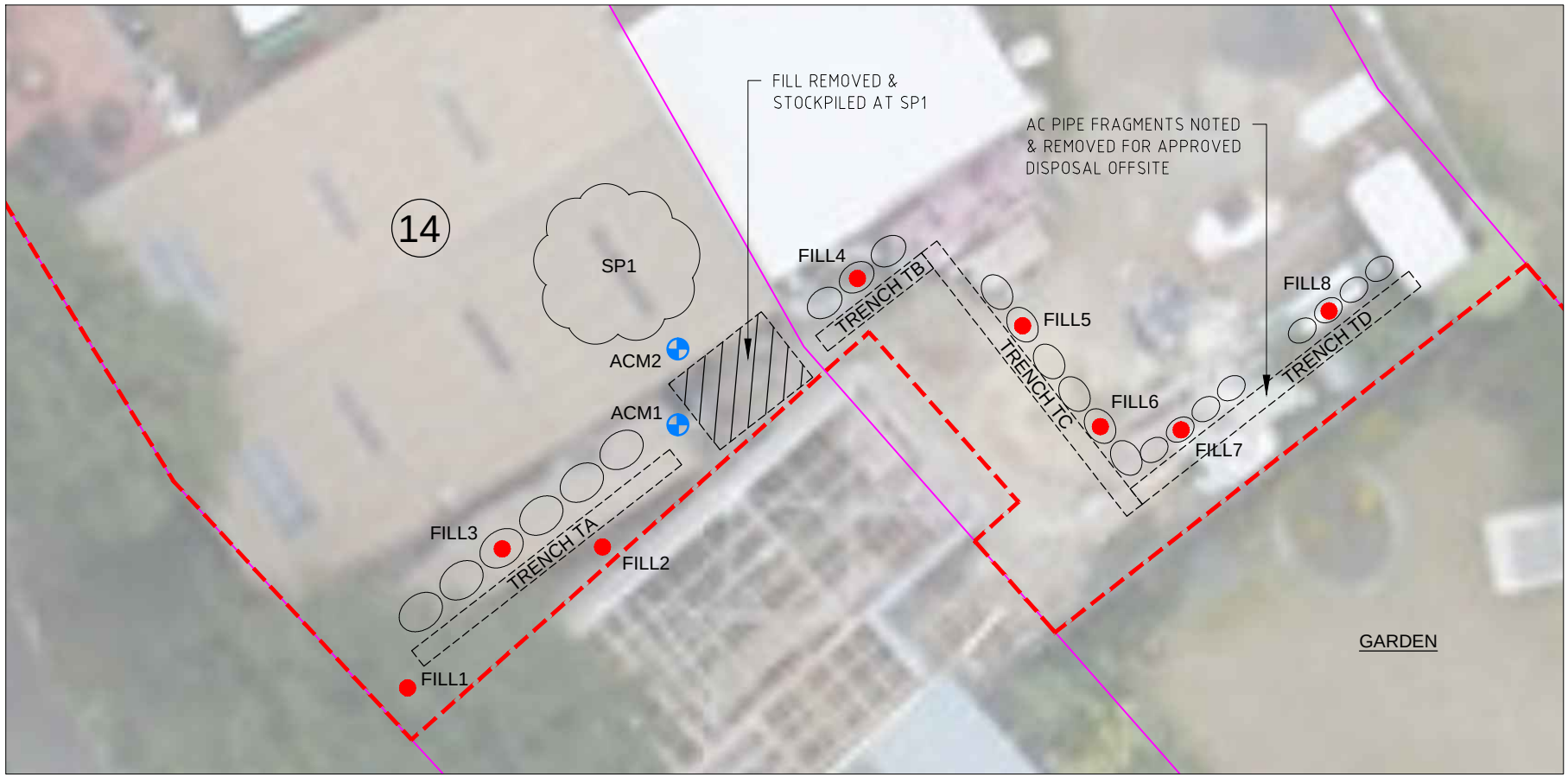
LEGEND

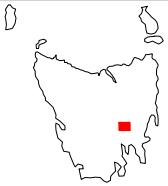
ORIGINAL ACM FRAGMENTS

FILL SAMPLE LOCATIONS (31/05/19)
(FROM EXCAVATED SOILS AT SIDE OF TRENCHES)



ACM & FILL SAMPLING LOCATIONS

.



LEGEND

TITLE BOUNDARY

INVESTIGATION BOUNDARY

1 TARGET LOCATION No.

18 CHURCH STREET - DETAILED SITE INVESTIGATION

FIGURE 10

ACM & FILL INVESTIGATIONS

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LEGEND

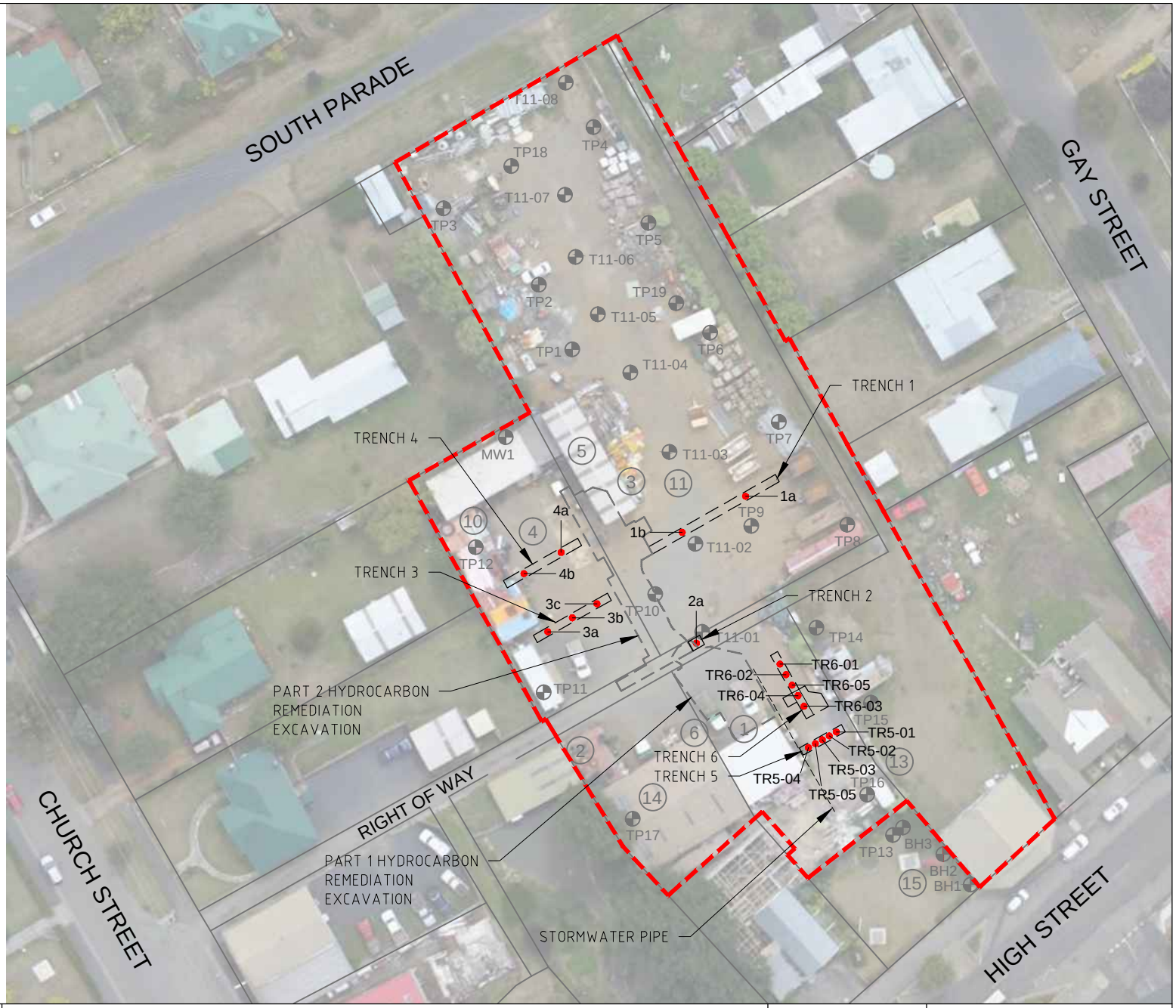
TRENCHES 1 TO 4; 21/06/18 (AVERAGE DEPTH 0.6m)

1a — TRENCH SOIL SAMPLE LOCATION

TRENCHES 5 & 6; 12/09/18 (AVERAGE DEPTH 0.9m (TRENCH 5), 0.7m (TRENCH 6))

TRx-xx — TRENCH SOIL SAMPLE LOCATION

NOTE: REFER TO FIGURE 12 FOR REMEDIAL WORKS IN TRENCH 6.



LEGEND

TITLE BOUNDARY

INVESTIGATION BOUNDARY

(1) TARGET LOCATION No.

18 CHURCH STREET - DETAILED SITE INVESTIGATION

FIGURE 11

FOLLOW UP TRENCH INVESTIGATIONS

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LEGEND

TRENCH 6; 12/09/18 (AVERAGE DEPTH 0.7m)

TR6-xx TRENCH SOIL SAMPLE LOCATION

LEGEND

TITLE BOUNDARY

INVESTIGATION BOUNDARY

1 TARGET LOCATION No.

18 CHURCH STREET - DETAILED SITE INVESTIGATION

FIGURE 12

TRENCH 6 REMEDIAL EXCAVATION

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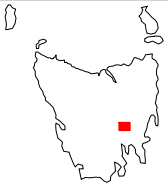
LEGEND

Lx-Vx FOOTPRINT VALIDATION SAMPLE



LEGEND

TITLE BOUNDARY

INVESTIGATION BOUNDARY

(1) TARGET LOCATION No.

18 CHURCH STREET - DETAILED SITE INVESTIGATION

FIGURE 13

WASTE STOCKPILES FOOTPRINT VALIDATION

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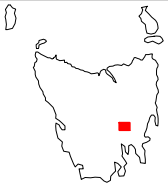
LEGEND

MRxx EXCAVATION VALIDATION SAMPLE LOCATION

NOTE: REFER FIGURE 15 FOR WASTE SOIL STOCKPILE



LEGEND

TITLE BOUNDARY

INVESTIGATION BOUNDARY

(1) TARGET LOCATION No.

18 CHURCH STREET - DETAILED SITE INVESTIGATION

FIGURE 14

LEAD CONTAMINATION REMEDIAL EXCAVATION

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Project Number: 4193.005

NOT TO SCALE

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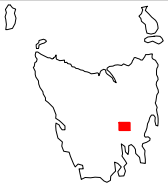
LEGEND

OPbValxx
FOOTPRINT VALIDATION SAMPLE

MSxx
STOCKPILE CLASSIFICATION



LEGEND

TITLE BOUNDARY

INVESTIGATION BOUNDARY

(1) TARGET LOCATION No.

18 CHURCH STREET - DETAILED SITE INVESTIGATION

FIGURE 15

METALS (LEAD) IMPACTED WASTE SOIL STOCKPILE

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covathinking.com
ACN 117 492 814

Date: 8th AUGUST 2019
Prepared by: COVA Pty Ltd

Project Number: 4193.005

NOT TO SCALE

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CERTIFICATE OF TITLE LEGEND

1. PUBLIC LAWN
2. COMMUNITY CENTRE (EXISTING USE)
3. PROPOSED AQUATIC CENTRE (BUILDING & INFRASTRUCTURE)
4. OPEN SPACE/PARK/OUTDOOR AREA

Soil Exceedances (post remedial works)

mg/kg	Depth (m)	Zn EIL (calculated)	TRH F2 ESL (ASC NEPM)
Commercial / Industrial (aquatic centre building and paved areas)		380	170
Public Open Space (park areas)		280	120
TP7-01	0.1	531	n/a
TP14-01	0.15	675	n/a
OPbVal01	0-0.05	809	n/a
OPbVal04	0-0.05	340	n/a
Fill 2	0-0.5	630	n/a
Fill 4	0-0.7	290	n/a
T1-13	1.4	n/a	430
T1-14	1.5	n/a	270
Blue =	exceeds both site use criteria		
Yellow =	exceeds public open space criterion		

TP7-01 (0.1m)

TP14-01 (0.15m)

OPbVAL01 (0.0-0.05m)

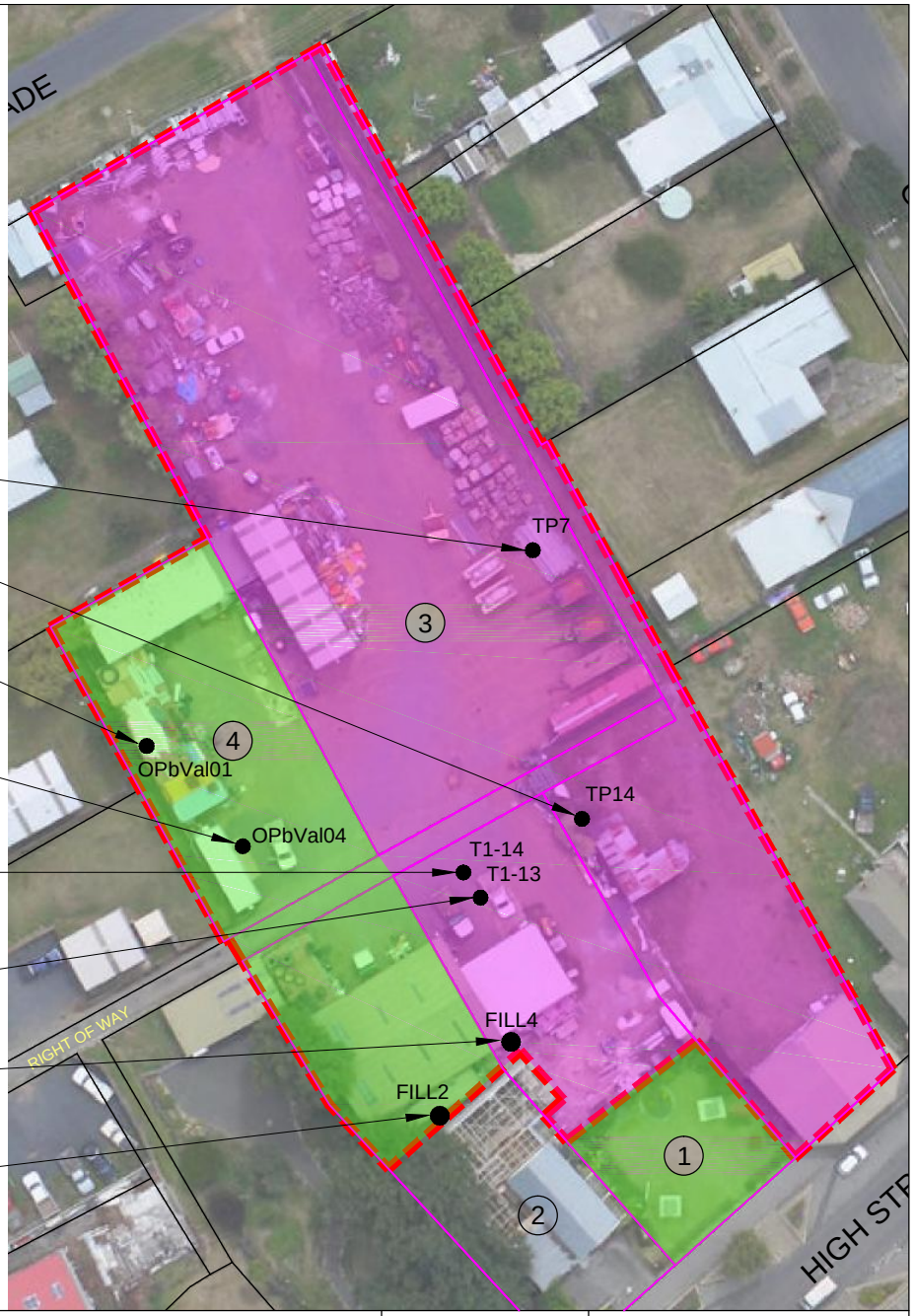
OPbVAL04 (0.0-0.05m)

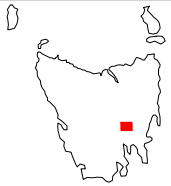
T1-14 (1.5m)

T1-13 (1.4m)

FILL4 (0.0-0.7m)

FILL2 (0.0-0.5m)





LEGEND

CURRENT TITLE BOUNDARY

INVESTIGATION BOUNDARY

18 CHURCH STREET - DETAILED SITE INVESTIGATION

FIGURE 16

RESIDUAL EXCEEDANCE OF SOIL ECOLOGICAL CRITERIA

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Prepared by: COVA Pty Ltd

Project Number: 4193.005

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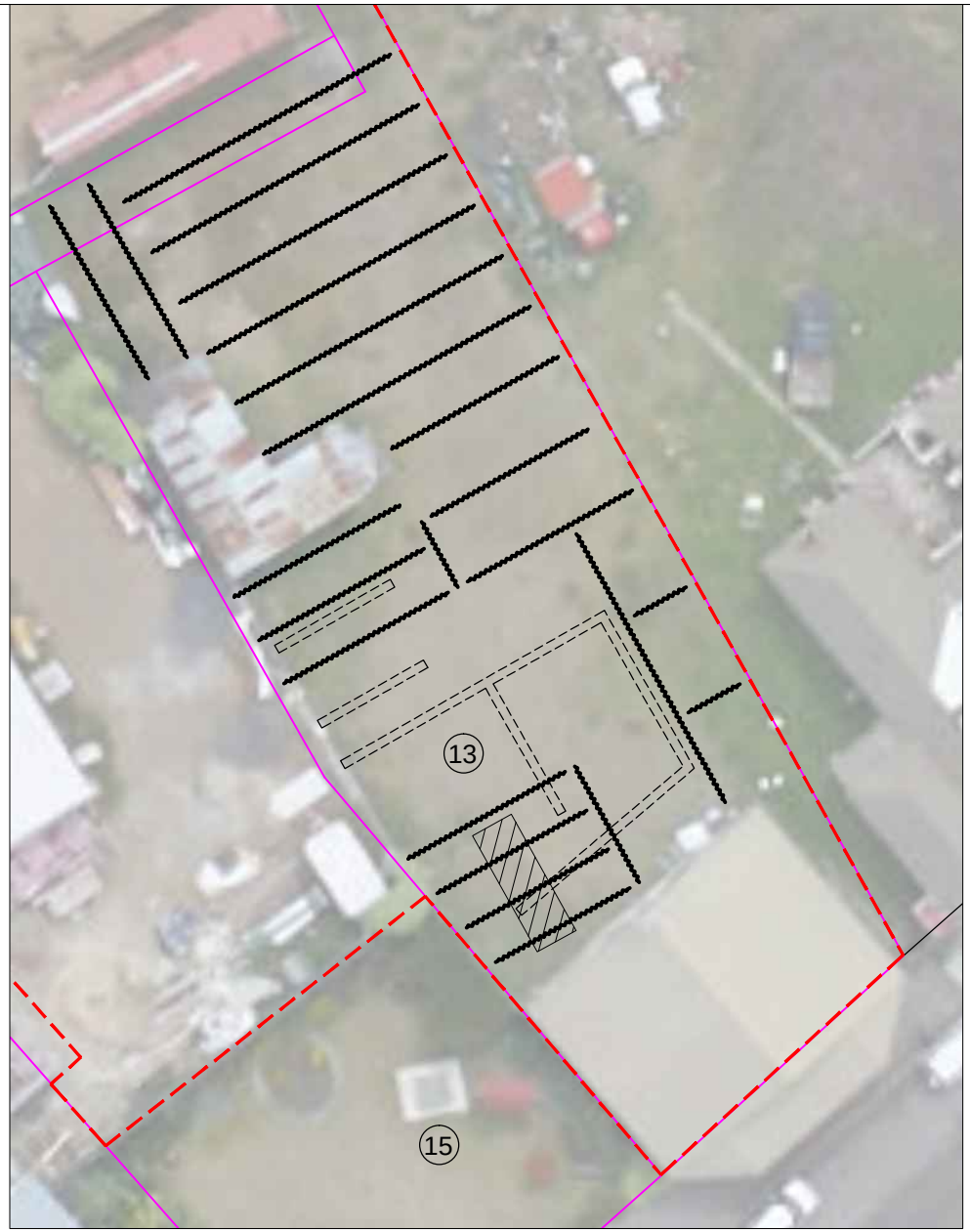
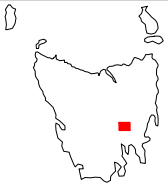
TARGETED LOCATIONS LEGEND

- (13) UPSS 3 (UNCONFIRMED)
- (15) ORIGINAL WORKSHOP (DEMOLISHED EARLY 70's)
- GRID SAMPLING TEST PITS
- BOREHOLES



GPR SURVEY LINES FOR TARGET AREA 13
(FORMER WORKSHOP)



LEGEND

- TITLE BOUNDARY
- INVESTIGATION BOUNDARY
- (1) TARGET LOCATION No.

18 CHURCH STREET - DETAILED SITE INVESTIGATION

FIGURE 17
TARGET 13 - GPR SURVEY AREAS

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Date: 8th AUGUST 2019
Prepared by: COVA Pty Ltd

Project Number: 4193.005

NOT TO SCALE

N

Appendix B – Proposed Land Use Plan

11889 TASMAN HIGHWAY (PO BOX 382) SWANSEA TASMANIA 7190 T +613 6257 8999 M 0418 826 555 E design@bzowyarc.com.au
BZOWY ARCHITECTURE

OATLANDS AQUATIC CENTRE

TITLE
70 HIGH STREET OATLANDS TAS 7190
ADDRESS
PROJECT

STATUS
18081
JOB DWG SCALE DRAWN DATE REF
DRAWING

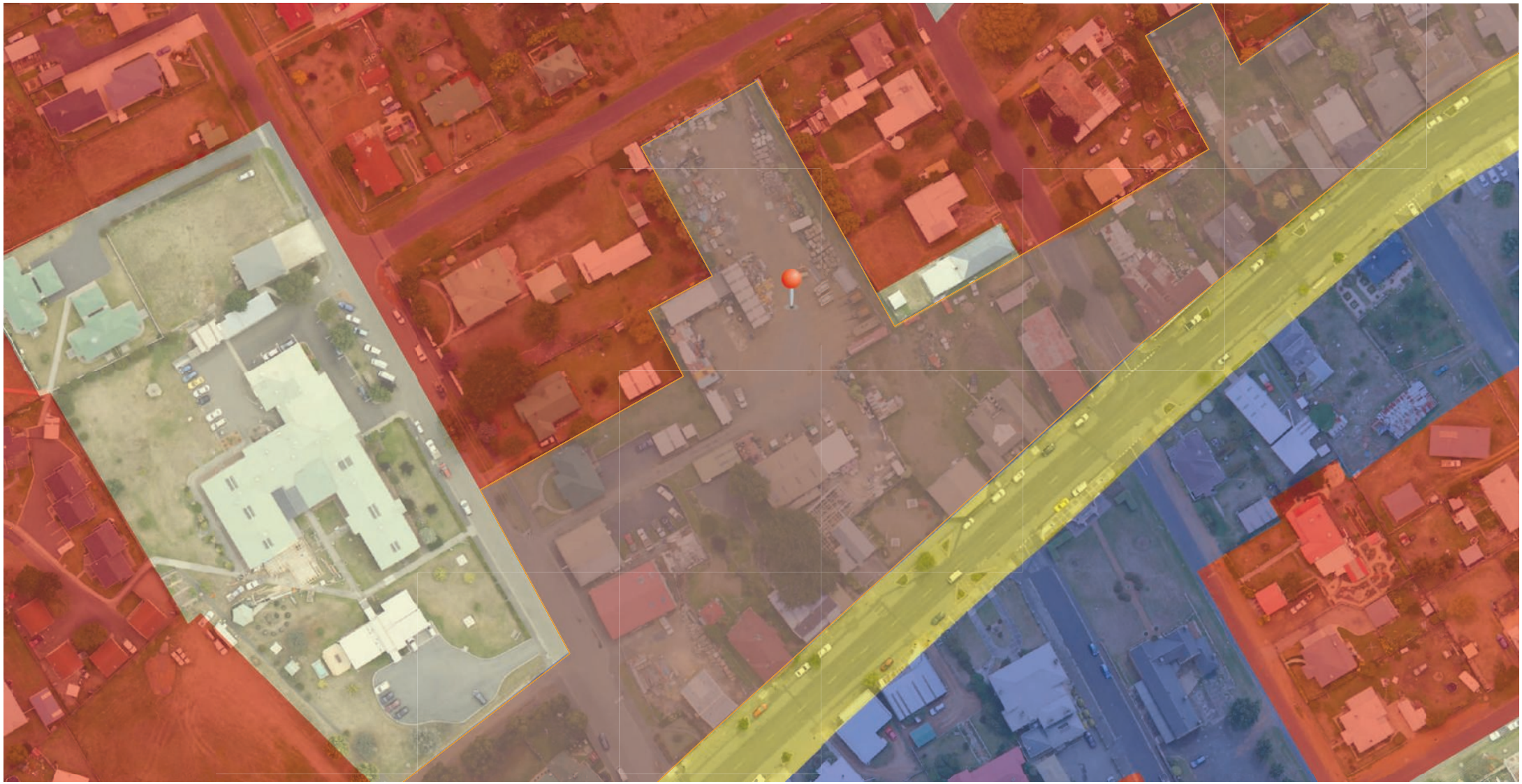
Drawings to be read in conjunction with all associated consultant designs drawings and specifications. Contractors shall verify all dimensions and levels before commencing works.

REV DATE DETAIL
REVISIONS

REV DATE DETAIL
REVISIONS

SOUTHERN MIDLANDS COUNCIL
CLIENT

Appendix C – LIST Zoning Map



Legend

Tasmanian Interim Planning Scheme Zoning

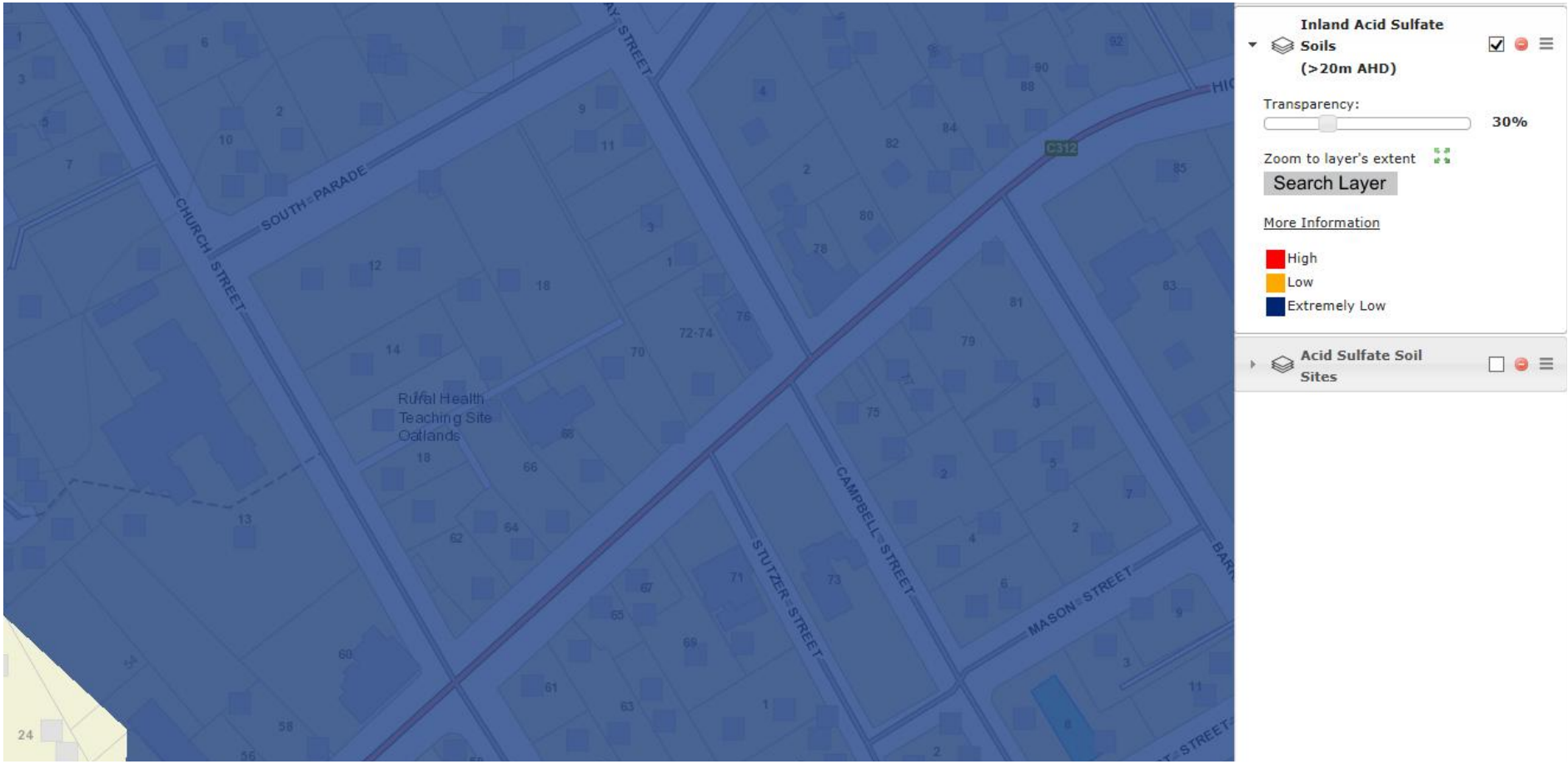
- 10.0 General Residential
- 11.0 Inner Residential
- 12.0 Low Density Residential
- 13.0 Rural Living
- 14.0 Environmental Living
- 15.0 Urban Mixed Use
- 16.0 Village
- 17.0 Community Purpose
- 18.0 Recreation
- 19.0 Open Space
- 20.0 Local Business
- 21.0 General Business
- 22.0 Central Business
- 23.0 Commercial
- 24.0 Light Industrial
- 25.0 General Industrial
- 26.0 Rural Resource
- 27.0 Significant Agricultural
- 28.0 Utilities
- 29.0 Environmental Mangement
- 30.0 Major Tourism
- 31.0 Port and Marine
- 32.0 - 39.0 Particular Purpose

State Aerial Photo

Tasmanian Government

Appendix D – LIST Acid Sulphate Soils Map

18 Church Street, Oatlands – Acid Sulphate Soils

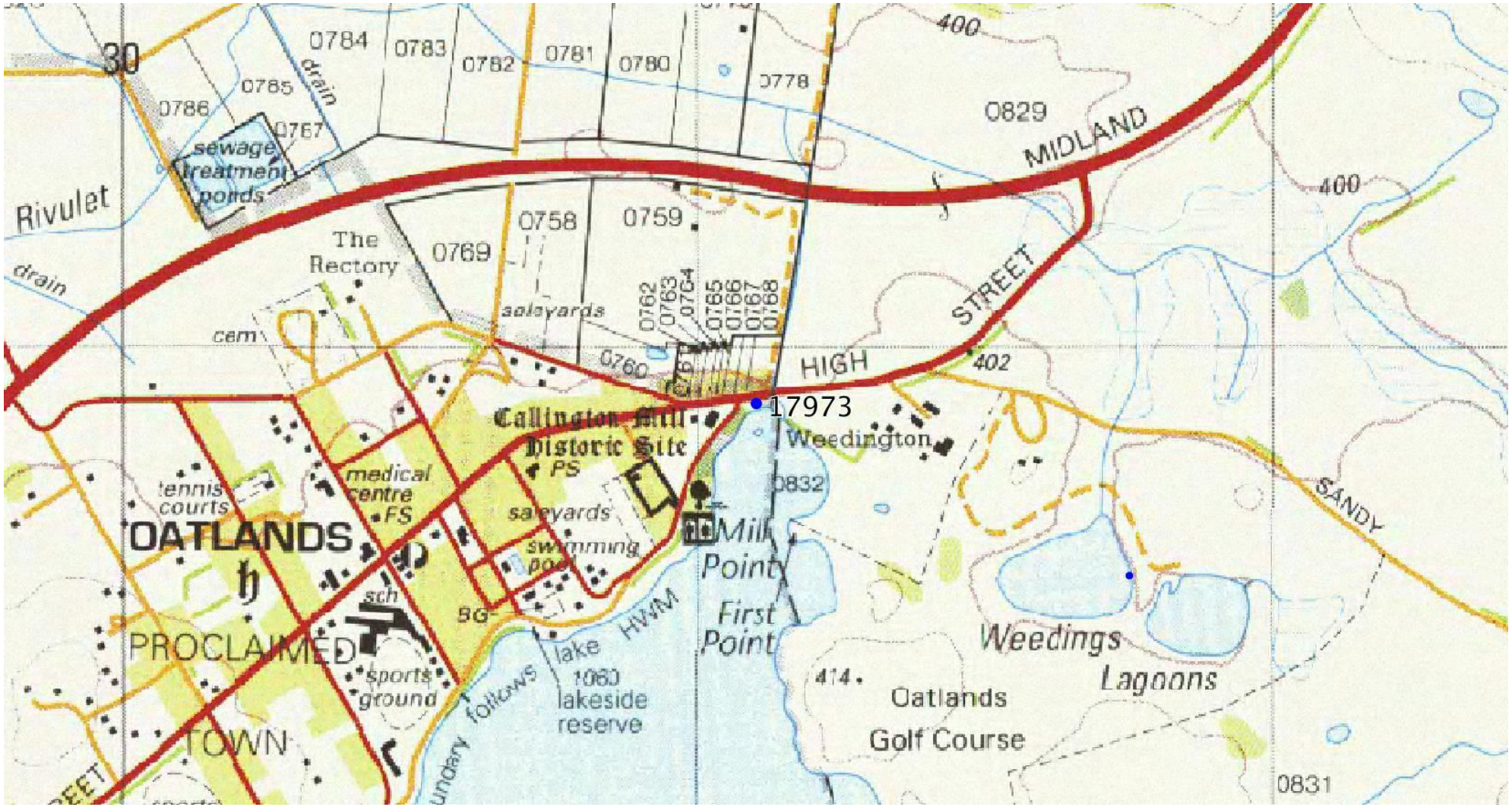


NOTES:

Extremely Low = extremely low probably of occurrence of acid sulphate soils (1-5%)

Source: The LIST website 7/8/17

Appendix E – DPIPWE Groundwater Information Access Portal Extract



Identification

Feature id: 17973 **Feature type:** Bore

Location

Locality: Oatlands
Easting: 531214 **Datum:** GDA94
Northing: 5317083 **Accuracy:** 50
Ground level (m ASL):

Construction

Date drilled: 22/01/1996
Drilling company: KMR Drilling Pty Ltd
Depth (metres): 42.00
Initial yield (L/sec): 8.84
Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	42.0	190.00	Air Percussion (Rotary air - R)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	42.0		150.00	unplasticised polyvinylchloride uPVC

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	2.0	clay
2.0	42.0	sandstone

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
22/01/1996	12.0		
22/01/1996	20.0		
22/01/1996	25.0		
22/01/1996	30.0		8.84

Main aquifer geology: Triassic
Final TDS (mg/L): 760

Standing Water Levels

Standing water levels

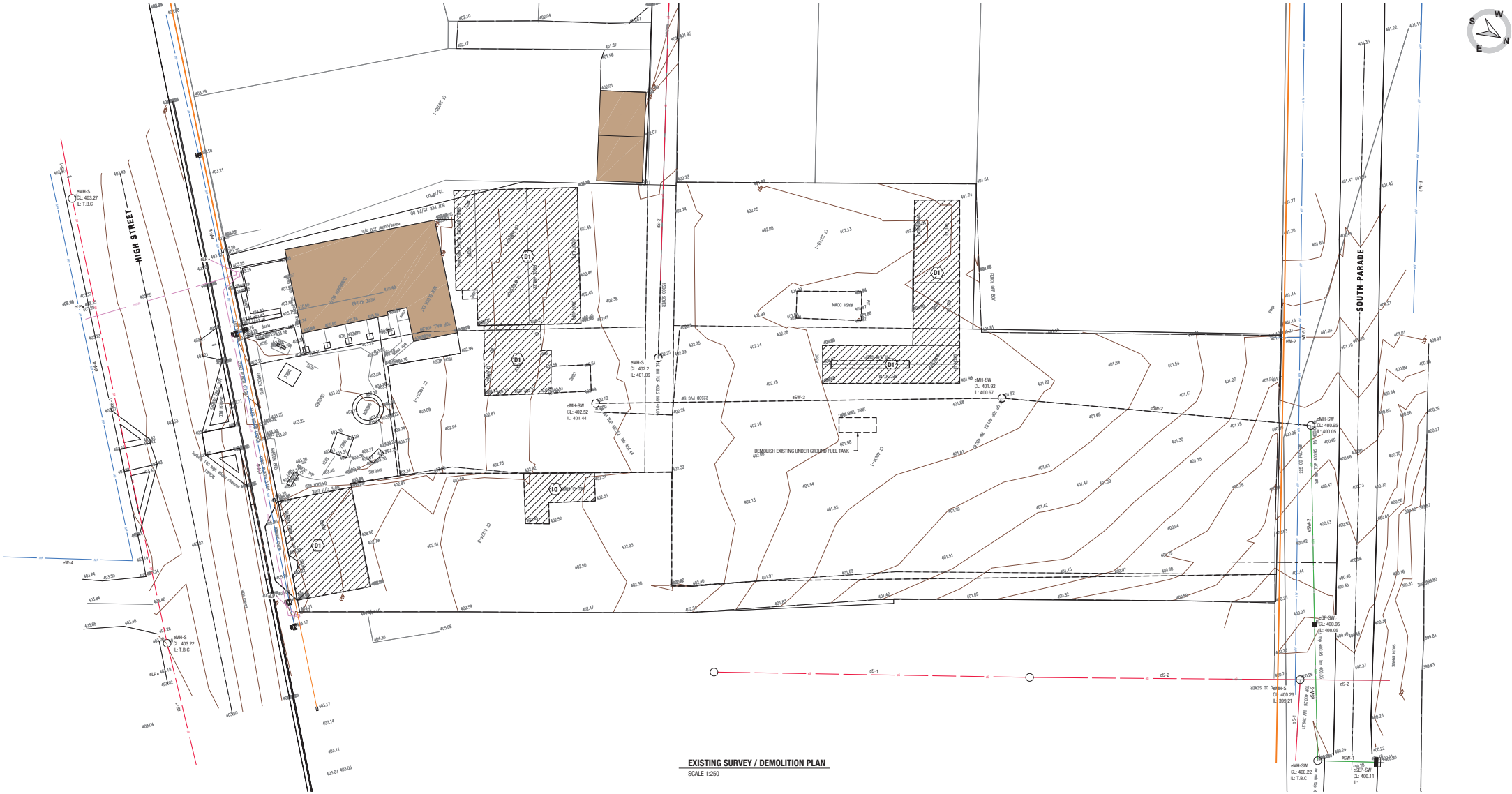
Date	SWL (metres)
NA	

Current status

Last recorded statuses

Type	Value	Date recorded
function	functioning	22/01/1996

Appendix F – Underground Services Infrastructure Plans



EXISTING SURVEY / DEMOLITION PLAN

SCALE 1:250

DEMOLITION NOTES

1. PRIOR TO COMMENCING DEMOLITION AND SITE WORKS, THE CONTRACTOR IS TO ARRANGE AND PAY FOR THE ON SITE MARKING AND CONFIRMATION OF DEPTH, OF SERVICE LOCATIONS FOR ALL UNDERGROUND SERVICES INCLUDING TELSTRA, AURORA, POWERCO AND COUNCIL SERVICES (ie: WATER, STORMWATER AND SEWER) IN THE AREA OF NEW WORKS. LOCATION TO BE CONFIRMED USING CABLE LOCATORS AND HAND DIGGING METHODS. PRIOR TO ANY WORKS ON SITE, ANY CLASHES WITH DESIGNED SERVICES ON FOLLOWING DRAWINGS ARE TO BE REPORTED TO DESIGN ENGINEER FOR DIRECTION.
2. REFER DRAWINGS FOR SET OUT DIMENSIONS & COORDINATE ALL LEVELS, CONTRACTOR TO REFER ENGINEER FOR ANY DISCREPANCIES / CLASHES.
3. CAP & TERMINATE & REMOVE REDUNDANT DISUSED DRAINAGE SERVICES TO SATISFACTION OF ENGINEER & LOCAL AUTHORITIES
4. INSTALL SILT FENCES & TRAPS TO PREVENT SEDIMENTS & POLLUTANTS ENTERING STORM WATER SYSTEM OR NATURAL DRAINAGE LINES
5. STOCK PILING OF SOILS OR MATERIALS AFFECTED BY WATER TO BE STORED CLEAR OF ANY DRAINAGE PATH
6. CLEAN SITE VEHICLES BEFORE EXITING SITE
7. DISPOSE OF EXCAVATED MATERIAL TO LICENSED WASTE FACILITY OR APPROVED LAND FILL SITE
8. TRENCHES WHERE SERVICES ARE REMOVED ARE TO BE FILLED WITH AN APPROVED COMPACTED MATERIAL & TO ENGINEERS COMPACTION SPECIFICATIONS. MATCH & MAKE GOOD EXISTING SURFACES TO MATCH EXISTING SURROUNDINGS.
9. NO FEES WILL BE CHARGED TO CONTRACTORS WHO DISPOSE WASTE FROM DEMOLITION WORK TO COUNCIL OWNED WASTE TRANSFER STATIONS
10. CONTRACTOR TO ALLOW TO MAKE PROVISIONS FOR PROTECTING EXISTING SHOP FRONTS FROM DAMAGE / DEBRIS PRODUCED FROM THE ABOVE SCOPE OF WORKS. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE SHOP FRONTS ARE LEFT IN THE SAME CONDITION AS PRIOR TO COMMENCING WORK DURING / AT END OF WORKS.

LEGEND

- DENOTES EXISTING STORM WATER MAIN (CONFIRM EXACT LOCATION)
- DENOTES EXISTING SEWER MAIN (CONFIRM EXACT LOCATION)
- DENOTES EXISTING WATER MAIN (CONFIRM EXACT LOCATION)
- DENOTES EXISTING TELSTRA LINE (CONFIRM EXACT LOCATION)
- DENOTES EXISTING SURFACE/STRUCTURE TO BE DEMOLISHED
- DENOTES EXISTING SERVICE LINE TO BE DEMOLISHED

1. **DISPOSE OF ALL WASTE TO COUNCIL APPROVED LOCATION AND / OR FACILITY**
2. **MAKE GOOD ALL POT HOLE TESTING TO SATISFACTION OF SUPERINTENDENT / ASSET OWNER**

EXISTING WATER MAIN SCHEDULE

MARK	PIPE SIZE	TYPE
eW-1	T.B.C	T.B.C
eW-2	20	T.B.C
eW-3	25	GALV. WROUGHT IRON
eW-4	50	GALV. WROUGHT IRON
eW-5	100	ASBESTOS CEMENT
eW-6	150	CAST IRON

EXISTING STORM WATER PIPE SCHEDULE

MARK	PIPE SIZE	TYPE	CLASS
eSW-1	T.B.C		-
eSW-2	225	uPVC	-

EXISTING SEWER PIPE SCHEDULE

MARK	PIPE SIZE	TYPE	CLASS
eS-1	T.B.C	T.B.C	-
eS-2	150	T.B.C	-

DEMOLITION

- **D1** DEMOLISH EXISTING BUILDING. CAP & TERMINATE ALL REDUNDANT SERVICES. EXISTING WATER METER & SEWER CONNECTIONS TO BE DISCONNECTED BY TASWATER AT DEMELOPERS COST. MAINS POWER TO BE TERMINATED BY TASNETWORKS.
- **D2** DEMOLISH EXISTING CONCRETE / PAVERED FOOTPATH TO EXTENT SHOWN. EXISTING PAVERS TO BECOME PROPERTY OF CONTRACTOR PREPARE AREA FOR NEW WORKS. ALL WORK TO A SAW CUT EDGE
- **D3** DEMOLISH EXISTING HOTMIX PAVEMENT AS SHOWN (HATCHED AREA). PREPARE AREA FOR NEW WORKS. ALL WORK TO A SAW CUT EDGE
- **D4** DEMOLISH EXISTING KERB & CHANNEL TO EXTENT SHOWN. PREPARE AREA FOR NEW WORKS.

WATER

- **W1** LOCATION OF WATER MAIN UNKNOWN
- **W2** POT HOLE EXISTING WATER & VERIFY DEPTH & ALIGNMENT WITH ENGINEER 14 DAYS PRIOR TO COMMENCING NEARBY WORKS. REFER ANY SERVICE CLASHES TO ENGINEER FOR DIRECTION, TYPICAL

SEWER

- **S1** POT HOLE EXISTING SEWER & VERIFY DEPTH & ALIGNMENT WITH ENGINEER 14 DAYS PRIOR TO COMMENCING NEARBY WORKS. REFER ANY SERVICE CLASHES TO ENGINEER FOR DIRECTION, TYPICAL

POWER

- **P1** RETAIN EXISTING LIGHT POLE. PROTECT DURING WORKS. REFER TASNETWORKS FOR DAMAGED / ROTTING POWER POLES 14 DAY PRIOR TO COMMENCING NEARBY WORKS.

TELECOMMUNICATIONS

- **T1** LOCATE AND PROTECT TELECOMMUNICATIONS SERVICES INCLUDING PITS & CONDUITS DURING WORKS

REV:	DESCRIPTION:	BY:	DATE:
01A	REVIEW	-	00-00-00

STATUS: **PRELIMINARY / INFORMATION**

DO NOT SCALE - IF IN DOUBT, ASK

APPROVED: R. JESSON | ACRED. No: CC5848I

DESIGN BY: - | DESIGN CHK: - | DRAWN BY: - | DRAFT CHK: - | DATE: 00-00-00

rare.
Level 1a, 10-14 Paterson Street
Launceston TAS 7250
rarein.com.au
P. 03 6388 9200

CLIENT: SOUTHERN MIDLANDS COUNCIL

PROJECT: OATLANDS AQUATIC CENTRE

ADDRESS: 18 CHURCH STREET OATLANDS

TITLE: EXISTING SURVEY / DEMOLITION PLAN

SCALE: 1:250 | SHEET SIZE: A1 | DWGs IN SET: -

PROJECT No: 17.065 | DWG No: C101 | REV: -

Appendix G – SMC Asbestos Register Extract

Site:	*Workshop & Store*	**Address:**	*18 Chucrh Street, Oatlands*
Administered By:	*Southern Midlands Council*	**Property ID**	*7817902*
Contact Details:	*Mr Jack Lyall - 62545000*		

INSPECTIONS

Date	By	Item	Description of Condition	Recommendation	Completed By	
02.11.07	*Asbestos Solutions Tas*	*Complete building*	*Good*	*as below*	*Michael Lyden*	*Asbestos audit*

PROBABILITY OF BUILDING CONTAINING ASBESTOS	CONDITION OF SUSPECT MATERIAL	RISK ASSESSMENT OF BUILDING USER EXPOSURE
Yes	*Stable sealed / P4*	*Low*

ASBESTOS LOCATION

Item No.	Photo / Lab Ref / Location	Description	Result / Condition	Likelihood of Disturbance	Date
1	*Photo: Yes; No Lab; Main Wkshp & Mechanics Pit*	*Zelemite SB panel*	*Contains Asbestos / Stable sealed*	*Low*	*02.11.07*

ASBESTOS REMEDIATION ACTION PLAN

Item No.	Control Method	Recommendations and Comments
1	*P4*	

CONTROL METHOD (refer to WST or ASCC web sites for current information on Flow Chart and Guidance Notes)

P1: Remove **P2: Encapsulate** **P3: Seal, Label & Monitor Annually** **P4: Identify & Monitor Annually** **N: Nil Asbestos, No Action Required**

WORK IN VICINITY OF ASBESTOS CONTAMINATION

Date	By	Signed	Description of Work

Reference Sites: http://www.ascc.gov.au/ascc/aboutus/publications/nationalstandards/listofnationalcodesofpractice.htm

http://www.wst.tas.gov.au/node/wstdgasbesto.htm

Appendix H – SMC Statutory Declarations

SOUTHERN MIDLANDS COUNCIL

Document C1

Final

Schedule of Disposals and Related Activities

Former SMC Depot Site

December 2019

CONTENTS

Schedule of Disposals and Related Activities

Item	Type of Material	Origin	Destination	Date Disposed	Transporter	Ref Invoice	Dollar Value Incl GST	SMC PO No.	Tonnage Carted	Tonnage Copping Gate
1	1 x 5000ltr Fuel Tank	Former SMC Depot Site, Oatlands	Disposal Certificate attached	28.02.18	Northern Fuel Maintenance Pty Ltd					
2	Waste liquid from UPSS	Former SMC Depot Site, Oatlands	Secure storage in SMC Glenelg St Depot	28.02.18 Refer attached Report and image	SMC		Nil			
3	Soil	Former SMC Depot Site, Oatlands	Oatlands Racecourse Then returned to the former SMC Depot Site, Oatlands for removal to Copping	Feb 2018	Southern Midlands Council				32	
4	Soil	Former SMC Depot Site, Oatlands	To Copping from Oatlands Racecourse, ex Depot (refer to Items 21 & 22 below)	Feb 2018	Southern Midlands Council					
5	Disposal Tip & Return 10m³ Hook Bin	Former SMC Depot Site, Oatlands	Copping	02.05.18	Veolia	2700924914	$1,582.99		6.6	

Item	Type of Material	Origin	Destination	Date Disposed	Transporter	Ref Invoice	Dollar Value Incl GST	SMC PO No.	Tonnage Carted	Tonnage Copping Gate
6	Disposal Tip & Return 10m³ Hook Bin	Former SMC Depot Site, Oatlands	Copping	02.05.18	Veolia	2700924914	$1,586.02		6.68	
7	Disposal Tip & Return 10m³ Hook Bin	Former SMC Depot Site, Oatlands	Copping	03.05.18	Veolia	2700924914	$2,363.24		11.8	
8	Disposal Tip & Return 10m³ Hook Bin	Former SMC Depot Site, Oatlands	Copping	14.05.18	Veolia	2700924914	$2,114.29		10.16	
9	Disposal amount at Copping 4 x 10m³ Hook Bin	Former SMC Depot Site, Oatlands	Copping	02.05.18 02.05.18 03.05.18 14.05.18	Veolia					35.24
10	Contaminated soil (3 trucks by 5 hours) (NB 1 truck turnaround time could be between 4hrs to 5 hrs)	Former SMC Depot Site, Oatlands	Copping	14.05.18	Hazell Bros Group Pty Ltd	HB_TIP8435	$2,310.00	33265	96	
11	Gate Fees for materials deposited 29.54t asbestos contaminated waste	Former SMC Depot Site, Oatlands	Copping	14.05.18	Hazell Bros Group Pty Ltd	HB_TIP8552 *This invoice only recharges the SWS Fees*	$4,110.49	33769		29.54
12	Contaminated soil (2 trucks x 4.5 hrs 73.26t)	Former SMC Depot Site, Oatlands	Copping	20.09.18	Hazell Bros Pty Ltd	HB_TIP9024	$1,368.00	34219	73.26	
13	Gate Fees for materials deposited 73.26t contaminated waste	Former SMC Depot Site, Oatlands	Copping	30.09.18	SWS	7333	$8,791.20			73.26
14	Contaminated soil	Former SMC	Copping	08.10.18	Hazell Bros Pty Ltd	HBB_TIP8882	$462.00	34219	39	

Item	Type of Material	Origin	Destination	Date Disposed	Transporter	Ref Invoice	Dollar Value Incl GST	SMC PO No.	Tonnage Carted	Tonnage Copping Gate
	(1 truck x 3 hrs say 32t)	Depot Site, Oatlands								
15	Contaminated soil (1 truck x 4.5 hrs say 32t)	Former SMC Depot Site, Oatlands	Copping	08.10.18	Hazell Bros Pty Ltd	HBB_TIP9027	$693.00	34219	38.22	
16	Contaminated soil (1 truck x 4.5 hrs say 32t)	Former SMC Depot Site, Oatlands	Copping	31.10.18	Hazell Bros Pty Ltd	HBB_TIP9030	$693.00	34219	38.48	
17	Gate Fees Copping	Former SMC Depot Site, Oatlands	Copping	October 2018	SWS	7390	$13,884	34293		115.70
18	Contaminated soil (2 truck x 2 trips each say 128t)	Former SMC Depot Site, Oatlands	Copping	01.05.19	Hazell Bros Pty Ltd	HB_TIP9482	$2,948.00	35102	128	
19	Gate Fees C Cell –	Former SMC Depot Site, Oatlands	Copping	01.05.19	Hazell Bros Pty Ltd	C Cell -43	$60,799.20	35101		138.18
20	AC Sewer pipes 150mm dia	Former SMC Depot Site, Oatlands	City of Glenorchy Accredited Dump Site	13.06.19	State-wide Earthworks Pty Ltd	SWEW_11988	$1,507.00	35128		
21	Overhead Fuel Tank and fuel lines	Former SMC Depot Site, Oatlands	New SMC Council Depot - Fuel Tank stored for future use - Fuel pipeline are going to be used as		SMC					

Item	Type of Material	Origin	Destination	Date Disposed	Transporter	Ref Invoice	Dollar Value Incl GST	SMC PO No.	Tonnage Carted	Tonnage Copping Gate
			fence strainers							
22	Clean fill to Copping (2 trucks& trailers)	From Race Course, ex Depot	Copping	19.11.19	Hazell Bros Pty Ltd	HB_TIP9898	$3,344.00		132.64	
23	Gate Fees Copping	From Race Course		Nov 2019	SWS	8794	$8,754.24	35739		132.64
								TOTALS	**612.84**	**524.56**

Notes to the Schedule

- Given the totals of carted material against the Gate tallies at Copping there is an issue, ie 88.28t that is not able to be accounted for.
- The only carted material not accounted for at the Gate is on the 14th May 2018, where there is an estimated 96t carted and only 29.54 receipted at the Copping gate which means 66.48t was not booked in. I note that the Manager Infrastructure & Works, Jack Lyall advised that on one occasion the computer at the weigh bridge at Copping was not working and the loads was let through without booking it in. If this was in fact the case the gate tally deficit would equate to 88.28t minus 66.48t. leaving 21.80t unaccounted for. Given the 613t as the total to be removed and a 21.80t discrepancy that would be a 3.56% error. This could very well be an acceptable error rate.
- According to the COVA estimated tonnage for the project, the total of L2 is 407t and the total of L1 is 169t therefore total of contaminated material to be carted and acquitted at the Copping Gate is 576t. The amount contained within the Schedule above totals 612.84 of carted material, therefore the figures show that an extra 37t above the COVA estimate have been carted. Some of the extra over amount could be accounted for through being overly cautious with the taking additional surrounding material from the Racecourse site.

Appendices

Queries From COVA & Questions Answered in the Compilation of the Information Contained in the Schedule

To Whom It May Concern

Second Review

A further request was received via Project Architect, R Bzowy on the 25th September 2019 *" just a couple more issues to tidy up and we are done"*

01 *Where was the UPSS bowser taken (page 3, 3rd dot point)?*

02 *Bottom of page 9, in the attached, three RESPONSE do not have any text, could these please be completed?*

03 *NEW item 11(page 11)appears to be a mix of old items (original Schedule) 5 and 6, I think tonnages and correct dollar amounts from original items 5 and 6 have been partly lost and need to be inserted correctly into the table.*

04 *Level 2 and Level 3 disposals are adequately reconciled as noted in green below. Level 1 soil disposals are still missing detail. Total tonnages overall should be*

a. Level 1, approximately 166t (including the 90t still at the racecourse) – no gate receipts for around 76t, ie two truck loads

b. Level 2, I estimated approximately410t (including the 29.54t of asbestos contaminated waste) – gate receipts provided by SMC are all for Level 2and total 391.92t, which is within the margin of error of my volume estimates.

c. OK Level 3 C Cell 138.18t.

Response to the latest questions

01 This is Item 21 in the Schedule on page 14 of this Schedule

02 Responses inserted on page 10 of the Schedule

03 The new Item 11 is a combination of the original Schedule Items 5 and 6, given that namely, the SWS gate docket and the Hazell Bros invoice covering the same load. The Hazell Bros invoice is the SWS gate docket fee plus 10% for the HB administration. Therefore the 29.54t of asbestos is the only figure relevant for that entry.

04 Please refer to Item C3 on page 14 of this Schedule, which was covered in the Statutory Declaration signed by Manager Infrastructure & Works Jack Lyall, submitted with the previous Schedule review.

First Review

A request was received via the Project Architect, R Bzowy on the 8th August 2019 for Council to review the Disposal Records provided by Council in June 2019, for the acquittal of the contaminated soils/materials and their subsequent removal to the Copping facility.

I have investigated the matters raised in the *Request for Additional Information* and this document responds to those matters

A. Request For Further Information
B. Response to the Request for Further Information
C. Revised Schedule of Disposals and Related Activities
D. Additional Documentation to the Original Chronology of Supporting Information (attachment)

A. Request for Addition Information

The following is advice from COVA following the original Schedule of Disposals that was submitted

"In *reconciling the actual volumes shown in the SMC documents with those expected, they don't tally. There are shortfalls in the documentation provided.*

- *As Level 1 to Copping*
- *As Level 2 to Copping B-Cell, and*
- *Confirmation of where the UPSS Bowser and fuel lines were taken.*

The total volume of 167.70t noted on Page 3 of the Schedule of Disposals falls short of the total volume of waste soils expected to have been disposed.

Expected vs. actual are detailed

1 Re items 4, 5, 6 – disposal on 14/5/2019: it would have been expected that:

LEVEL 2 – ***EPA letter of 23/3/18 for 152 cbm of Level 2 contaminated soils to Copping B-Cell:***

1a. Estimated 140cbm of LEVEL 2 ***hydrocarbon*** *contaminated soil (Stockpiles B, to the RHS of the first large hydrocarbon remedial excavation) (equivalent tonnage would be around 160t)*

1b. Dog trailers x 2 = approx. 12cbm of LEVEL 2 hydrocarbon contaminated soil (equivalent tonnage would be around 15t)

1c. LEVEL 1 (not for reuse due to low grade contamination):

1d. Veolia Skip bins x 2 = approx. 10 cbm of Level 1 hydrocarbon odorous soil to be disposed to landfill due to odour (equivalent tonnage would be around 12t)

SMC documentation shows:

1e. 15t (3x 5t) of contaminated soil – This likely relates to the Dog Trailers ***– SMC to please confirm****, and*

1f. 29.54 t of asbestos contaminated soil (asbestos is unrelated to the hydrocarbon contamination – these wastes do not appear to be related to the Site waste soils
SMC to clarify*)*

GAPS:

Two gaps remain highlighted in yellow:

1g. Around 140cbm or 160t of LEVEL 2 and

1h. Around 10cbm or 12t of LEVEL 1.

***SMC to pro*vide disposal documentation for:**

2. Re items 7, 8, 9, and 10 – disposals from 20*/9/18 to 31/10/18 inclusive, it would have been expected that:*

2a. Asbestos-impacted waste soils (the soils removed next to the Community Centre, where two pieces of confirmed ACM were found): 2 cbm

LEVEL 2 – ***EPA letters of 3/7/18: 200 cbm to Copping B Cell and 26/9/18: 6cbm to Copping B Cell:***

2b. Approx. 200 cbm (over 240 t expected) of LEVEL 2 ***hydrocarbon & gross waste contaminated soil*** *(very tall Stockpile D that was located within the Main Workshop area)*

2c. Approx. 6 cbm (over 7 t expected) of LEVEL 2 hydrocarbon contaminated soil (waste soils from Trench 6, excavated parallel to the eastern fenceline, and soils stockpiled north of the remaining small shed)

2d. Total LEVEL 2 to Copping B Cell expected: approx. 206cbm or 247t

LEVEL 1 (not for reuse due to low grade contamination – (Stockpile C, soils to the RHS of the second large hydrocarbon remedial excavation) – a lot of these were initially taken to the Racecourse ramp:

2e. Approx. 100 cbm (approx. 120t) (Stockpile C)

2f. Approx. 28 cbm (approx. 34t) (Stockpile E – initially very contaminated soils placed next to South Parade, left to bioremediate)

2g. Total Level 1 to Copping expected: approx. 128 cbm (approx. 154 t)

SMC documentation shows:

2h. 9t (2 x 4.5t) on 20/9

2i. 3t on 8/10

2j. 4.5t on 8/10

2k. 4.5t on 31/10

2l. Totalling: 21t of contaminated soil disposed to Copping (B-cell?);

GAPS:

Three gaps remain highlighted in yellow:

2m. No record of disposal of Asbestos-impacted soil waste (those excavated from next to the Community Centre)

2n. Shortfall of around 226t of LEVEL 2 waste soil to Copping, and

2o. Shortfall of around 128t of Level 1 waste soil (not for reuse) to Copping

B. Response to the Request for Further Information

The following actions have been undertaken;

B(i). A based level assessment was undertaken to check of the volume of the site excavations against the volume of material listed for disposal with the volumes of the holes in the ground plus some percentage for bulking of the excavated material proved to be correct

B(ii). An investigation to check if any of the invoices pertinent to the Ex Depot Site had been costed to any other cost centre, and therefore account for any missing invoices from the Transporter or from Southern Waste Solutions (SWS). Three cost centres other than the Ex Depot Site were checked. Invoices were found to be costed against the new Depot Site and upon further investigation it was found that in the case of the Veolia Skip Bins that the SWS Gate Fees were included in the invoice but not flagged as SWS charges.

B(iii). On my analysis of the invoices, specifically the Hazell Bros invoices, it was noted that the Qty column of the invoice contained a figure, the next column was Type, the next the Rate followed by the Total.

I questioned, why a truck and trailer that has the capability of carrying in the order of say 32t, only delivered 5t as per the docket. (refer clipped invoice below)

I then looked at the estimated travel time, from HB Depot in Lampton Ave, to Oatlands, Load, then to Copping, then back to HB Lampton Ave. Given a car could travel from Oatlands to Copping in approx..1.25 hours and that would be on the Mud Walls Road, which a loaded truck would not be permitted to travel on given the load limit on Mud Walls Road, the laden truck would need to travel the Midland Highway. All in all, I assumed that one truck and trailer could do the return trip referred to above, between 4 to 5 hours depending on the time of day / traffic congestion.

My conclusion is that the Qty was in fact 'hours', rather than Tonnage in the Type column it should say Hours. Therefore this has given rise to the questions asked in the assessment of my original Schedule document. If it is assumed that the round trip takes approximately five hours as argued above, this one truck did one trip to Copping full loaded (given there were three truck on this same invoice for the same day, it would not have been a part load) truck and trailer with a capacity in the order of 32t, rather than the 5t as shown on the invoice.

V03951

Date	Docket No	Unit	Description	Qty	Type	Rate	Total
14/05/2018		1VT865	(262008) TRUCK AND TRAILER - CONTAMINATED WASTE - OATLANDS	5.00	Tonnage	140.00	700.00

B(iv). In the Schedule version 2 below two additional columns have been added to the table, one columns details tonnage carted by the Transporter and the other column details tonnage related to Gate Fees/Acquittal at Copping.

B(v) Responses in red to seek to clarify the questions from the email requesting further information

*LEVEL 2 – **EPA letter of 23/3/18 for 152 cbm of Level 2 contaminated soils to Copping B-Cell:***

*1a. Estimated 140cbm of LEVEL 2 **hydrocarbon** contaminated soil (Stockpiles B, to the RHS of the first large hydrocarbon remedial excavation) (equivalent tonnage would be around 160t)*

RESPONSE: Refer to Schedule totals and the subsequent discussion under the Schedule totals

1b. Dog trailers x 2 = approx. 12cbm of LEVEL 2 hydrocarbon contaminated soil (equivalent tonnage would be around 15t)

RESPONSE: The Dog Trailers were emptied at the Ex Depot Site on the heap as they were not registered to carry contaminated material to Copping.

LEVEL 1 (not for reuse due to low grade contamination):

1c. Veolia Skip bins x 2 = approx. 10 cbm of Level 1 hydrocarbon odorous soil to be disposed to landfill due to odour (equivalent tonnage would be around 12t)

RESPONSE: Records show that there were four Veolia Skip Bins (10m³ Hook Bins) totalling 35.24t

SMC documentation shows:

*1d. 15t (3x 5t) of contaminated soil – This likely relates to the Dog Trailers **– SMC to please confirm**, and*

RESPONSE: Not correct. The Dog Trailers were emptied back at the Ex Depot Site with the other material ready to be carted to Copping.

1e. 29.54 t of asbestos contaminated soil (asbestos is unrelated to the hydrocarbon contamination – these wastes do not appear to be related to the Site waste soils

RESPONSE: It is assumed that the asbestos contamination was from a small amount identified on the site and loaded into a truck along with other materials going to Copping and therefore the whole load was determined to be 'asbestos contaminated'

SMC to clarify)GAPS:

Two gaps remain highlighted in yellow:

1f. Around 140cbm or 160t of LEVEL 2 and

RESPONSE: Refer to Schedule totals and the subsequent discussion under the Schedule totals

1g. Around 10cbm or 12t of LEVEL 1.

RESPONSE: Ref to 1f above

2. Re items 7, 8, 9, and 10 – disposals from 20*/9/18 to 31/10/18 inclusive, it would have been expected that:*

2a. Asbestos-impacted waste soils (the soils removed next to the Community Centre, where two pieces of confirmed ACM were found): 2 cbm

RESPONSE: Ref to 1e above

LEVEL 2 – ***EPA letters of 3/7/18: 200 cbm to Copping B Cell and 26/9/18: 6cbm to Copping B Cell:***

2b. Approx. 200 cbm (over 240 t expected) of LEVEL 2 ***hydrocarbon & gross waste contaminated soil*** *(very tall Stockpile D that was located within the Main Workshop area)*

RESPONSE: Refer to 1f above

2c. Approx. 6 cbm (over 7 t expected) of LEVEL 2 hydrocarbon contaminated soil (waste soils from Trench 6, excavated parallel to the eastern fenceline, and soils stockpiled north of the remaining small shed)

RESPONSE:

2d. Total LEVEL 2 to Copping B Cell expected: approx. 206cbm or 247t

RESPONSE: Refer to 1f above

LEVEL 1 (not for reuse due to low grade contamination – (Stockpile C, soils to the RHS of the second large hydrocarbon remedial excavation) – a lot of these were initially taken to the Racecourse ramp:

2e. Approx. 100 cbm (approx. 120t) (Stockpile C)

RESPONSE: Refer to 1f above

2f. Approx. 28 cbm (approx. 34t) (Stockpile E – initially very contaminated soils placed next to South Parade, left to bioremediate)

RESPONSE: Refer to 1f above

2g. Total Level 1 to Copping expected: approx. 128 cbm (approx. 154 t)

RESPONSE: Refer to 1f above

SMC documentation shows:

2h. 9t (2 x 4.5t) on 20/9

RESPONSE: Refer to the discussion in B(iii) above

2i. 3t on 8/10

RESPONSE: Refer to the discussion in B(iii) above

2j. 4.5t on 8/10
RESPONSE: Refer to the discussion in B(iii) above

2k. 4.5t on 31/10
RESPONSE: Refer to the discussion in B(iii) above

2l. Totalling: 21t of contaminated soil disposed to Copping (B-cell?);
RESPONSE: Refer to the discussion in B(iii) above

GAPS:

Three gaps remain highlighted in yellow:

2m. No record of disposal of Asbestos-impacted soil waste (those excavated from next to the Community Centre)
RESPONSE: Refer to 1e above
2n. Shortfall of around 226t of LEVEL 2 waste soil to Copping, and
RESPONSE: Refer to 1f above
2o. Shortfall of around 128t of Level 1 waste soil (not for reuse) to Copping
RESPONSE: Refer to 1f above

LEVEL 2 – ***EPA letters of 3/7/18: 200 cbm to Copping B Cell and 26/9/18: 6cbm to Copping B Cell:***

2b. Approx. 200 cbm (over 240 t expected) of LEVEL 2 ***hydrocarbon & gross waste contaminated soil*** *(very tall Stockpile D that was located within the Main Workshop area)*
RESPONSE: Refer to 1f above
2c. Approx. 6 cbm (over 7 t expected) of LEVEL 2 hydrocarbon contaminated soil (waste soils from Trench 6, excavated parallel to the eastern fenceline, and soils stockpiled north of the remaining small shed)
RESPONSE: Refer to 1f above
2d. Total LEVEL 2 to Copping B Cell expected: approx. 206cbm or 247t
RESPONSE: Refer to 1f above

LEVEL 1 (not for reuse due to low grade contamination – (Stockpile C, soils to the RHS of the second large hydrocarbon remedial excavation) – a lot of these were initially taken to the Racecourse ramp:

2e. Approx. 100 cbm (approx. 120t) (Stockpile C)
RESPONSE: Refer to 1f above
2f. Approx. 28 cbm (approx. 34t) (Stockpile E – initially very contaminated soils placed next to South Parade, left to bioremediate)
RESPONSE: Refer to 1f above

2g. Total Level 1 to Copping expected: approx. 128 cbm (approx. 154 t)
RESPONSE: Refer to 1f above

SMC documentation shows:

2h. 9t (2 x 4.5t) on 20/9
RESPONSE: Refer to the discussion in B(iii) above
2i. 3t on 8/10
RESPONSE: Refer to the discussion in B(iii) above
2j. 4.5t on 8/10
RESPONSE: Refer to the discussion in B(iii) above
2k. 4.5t on 31/10
RESPONSE: Refer to the discussion in B(iii) above
2l. Totalling: 21t of contaminated soil disposed to Copping (B-cell?);
RESPONSE: Refer to the discussion in B(iii) above

GAPS:

Three gaps remain highlighted in yellow:

2m. No record of disposal of Asbestos-impacted soil waste (those excavated from next to the Community Centre)
RESPONSE: Refer to Item 19 in the Schedule Table on page 13
2n. Shortfall of around 226t of LEVEL 2 waste soil to Copping, and
RESPONSE: Reconciled in the Notes on page 14 of this Schedule
2o. Shortfall of around 128t of Level 1 waste soil (not for reuse) to Copping
RESPONSE: Reconciled in the Notes on page 14 of this Schedule

C. Additional Information Refer Item 2 of the Schedule

The waste from the UPSS was drained by SMC and encapsulated in a poly tank (open top). The tank was secured and transported to the Glenelg Street Council Depot. The image attached (Image A) shows that the liquid has evaporated. The remaining product from the tank has been deposed of at the Council Oatlands Waste Transfer Station in the oil recover station.

Image A

D. Additional Information Refer Item 4 of the Schedule

It was understood that this soil was categorised to be deposed of at a landfill, so it was initially taken to the Oatlands Race Course to be used as fill. It was in that location, untouched for approximately three weeks, then Council were advised that it was at a higher level of contamination and therefore it needed to go to Copping. It appears after investigation that only one load approximately 32t was loaded back into the Council truck and transported back to the Former Depot Site, where it was loaded with the other contaminated material and transported to Copping by Hazell Bros in May 2018. It is understood that because of wet conditions only one truck and trailer were loaded and on inspection with the Manager Infrastructure & Works, there appears to be approximately 90t still at the Racecourse site, yet to be carted to Copping. This amount has since been carted to Copping (November 2019) refer Items 21 & 22 in the Schedule.

E. Additional Information Refer Item 11 of the Schedule

The Certificate of Final Inspection – Demolition Works, for the Workshop, Council Depot noted that there was no asbestos on the site to be removed however, some AC shards were found in the soil and they were removed to Copping as part of Item 11 in the Schedule.

Compilation Endorsement

I confirm that I have compiled the information in this document, the *Final Schedule of Disposals and Related Activities – Former SMC Depot Site* based on information provided.

16.12.19

Andrew Benson
Deputy General Manager
Southern Midlands Council
Email: abenson@southernmidlands.tas.gov.au Mobile: 0429 852 730

Attachments

- *Statutory Declaration*

Department of Justice

Tasmania

STATUTORY DECLARATION

OATHS ACT 2001

I (full name) John Clifford Lyall

of (residential address) Lyalls Road Tunnack Tasmania 7120

Occupation Local Government Manager

do solemnly and sincerely declare that:

The information contained in the document titled 'Schedule of Disposals and Related Information' marked as Document 'C1' attached is true and correct.

I make this solemn declaration under the *Oaths Act 2001*.

Declared at Kempton

(place)

on 16th December 2019

(date)

J Lyall

(Signature)

Before me T K Kierwood JP. 1983

(Justice, Commissioner for Declarations or authorised person)

Appendix I – Sample Register

PROJECT NAME	18 Church Street - Detailed Site Investigation	PROJECT NO.	4193.005
SITE NAME	Southern Midlands Council – Former Works Depot		

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
GRID TEST PIT LOCATIONS: 31/01/18 Notes: Samples collected from TP3 (TP3-01 and TP3-02) and from TP4 (TP4-02) were also analysed for NEPM soil classification. The PID beeped (due to moisture?) at two locations (TP1-02 and TP3-02) but still with readings of 0 ppm. A number of locations were resampled on 6/02/18 due to water in the original sample (ice melt).											
TP1-01	E - 530581 N - 5316981	Refer figure	0.1	Gravel and sand	Coarse	Dry	Red / brown No staining	No odour	0	Grid sample Resampled 6/2/18 due to water in first sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
Triplicate 1	ALS - Triplicate of TP1-01										
Triplicate 2	Eurofins – Triplicate of TP1-01										
TP1-02	E - 530562 N - 5317001	Refer figure	0.7	Loamy gravel	Coarse	Moist	Dark brown No staining	Loamy odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP2-01	E - 530576 N - 5316990	Refer figure	0.1	Gravely sand	Coarse	Dry	Red / brown No staining	No odour	0	Grid sample Resampled 6/2/18 due to water in first sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP2-02	E - 530576 N - 5316990	Refer figure	0.4	Loamy, gravelly sand	Coarse	Moist	Brown / yellow No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
TP3-01 (+ NEPM 1)	E - 530567 N - 5316998	Refer figure	0.1	Sandy gravel	Coarse	Dry	Red / brown No staining	No odour	0	Grid sample Resampled 6/2/18 due to ice-melt	TRH/TPH/BTEXN/ PAH/Heavy Metals + NEPM classification
TP3-02 (+ NEPM 2)	E - 530567 N - 5316998	Refer figure	0.5	Weathered sandstone	Coarse	Moist	Pale brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals + NEPM classification
Rinsate-digger	Rinsate from excavator bucket (bucket washed with a hose between each test pit)										
TB1	Trip blank										
TP4-01	E - 530584 N - 5317013	Refer figure	0.1	Gravelly sand	Coarse	Dry	Red / brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP4-02 (+ NEPM 3)	E - 530584 N - 5317013	Refer figure	0.3	Sandy, gravelly loam	Coarse	Moist	Dark brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals + NEPM classification
TP5-01	E - 530592 N - 5316999	Refer figure	0.2	Gravelly sand	Coarse	Dry	Pale brown / white No staining	No odour	0	Resampled 6/2/18 due to ice-melt	TRH/TPH/BTEXN/ PAH/Heavy Metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
TP5-02	E - 530592 N - 5316999	Refer figure	0.6	Gravelly, loamy sand	Coarse	Moist	Dark brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP6-01	E - 530601 N - 5316983	Refer figure	0.1	Gravelly sand	Coarse	Dry	Red / brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP6-02	E - 530601 N - 5316983	Refer figure	0.5	Gravelly loam	Coarse	Moist	Dark brown No staining	No odour	0	Resampled 6/2/18 due to ice-melt	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP6-water (sampled 20/2/18)	E - 530601 N - 5316983	TP6 accumulated rainwater	0.5	Silty, turbid rainwater	-	-	-	No odour	-	Water sample from soil grid location TP6	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP7-01	E - 530611 N - 5316970	Refer figure	0.1	Gravelly sand	Coarse	Dry	Red / brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP7-02	E - 530611 N - 5316970	Refer figure	0.3	Loamy sand	Coarse	Moist	Dark brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
Duplicate 1	ALS - Duplicate of TP7-02										
TP8-01	E - 530621 N - 5316955	Refer figure	0.1	Gravelly sand	Coarse	Dry	Red / brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
TP8-02	E - 530621 N - 5316955	Refer figure	0.2	Loamy sand	Coarse	Moist	Dark brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP9-01	E - 530607 N - 5316955	Refer figure	0.1	Gravelly sand	Coarse	Dry	Pale red / brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP9-02	E - 530607 N - 5316955	Refer figure	0.3	Loamy sand	Coarse	Moist	Dark brown No staining	No odour	0	Grid sample Resampled 6/2/18 due to ice-melt	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP10-01	E - 530593 N - 5316945	Refer figure	0.2	Gravelly sand	Coarse	Dry	Red / brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP10-02	E - 530593 N - 5316945	Refer figure	0.5	Loamy sand	Coarse	Moist	Dark brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP11-01	E - 530577 N - 5316931	Refer figure	0.2	Gravelly sand	Coarse	Dry	Grey / brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP11-02	E - 530577 N - 5316931	Refer figure	0.5	Gravelly sand	Coarse	Moist	Grey / brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
TP12-01	E - 530572 N - 5316951	Refer figure	0.1	Gravelly sand	Coarse	Dry	Red / brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP12-02	E - 530567 N - 5316952	Refer figure	0.4	Gravelly, loamy sand	Coarse	Moist	Brown No staining	No odour	0.5	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP12-03	E - 530567 N - 5316952	Refer figure	0.7	Sand	Coarse	Moist	Green / brown Staining	Yes – sulphidic?	0	Grid sample – green staining	TRH/TPH/BTEXN/ PAH/Heavy Metals, pesticides & herbicides
Duplicate 2	ALS - Duplicate of TP12-03										
TP13-01	E - 530628 N - 5316910	Refer figure	0.2	Sandy loam	Coarse	Moist	Dark brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP13-02	E - 530628 N - 5316910	Refer figure	0.7	Sand	Coarse	Moist	Rd / orange No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP14-01	E - 530616 N - 5316940	Refer figure	0.15	Sandy loam	Coarse	Dry	Dark brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
TP15-01	E - 530624 N - 5316929	Refer figure	0.1	Sandy loam	Coarse	Dry	Dark brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP15-02	E - 530624 N - 5316929	Refer figure	0.3	Sand	Coarse	Dry	Grey / brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP16-01	E - 530624 N - 5316916	Refer figure	0.2	Gravelly sand	Coarse	Dry	Brown No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP16-02	E - 530624 N - 5316916	Refer figure	0.5	Sand	Coarse	Moist	Yellow / orange No staining	No odour	0	Grid sample	TRH/TPH/BTEXN/ PAH/Heavy Metals
TP17-01	E - 530594 N - 5316913	Additional grid location in old workshop	0.1	Gravelly sand	Coarse	Dry	Ash / soot / blacksmith wastes	No odour	-	Grid sample	TRH/TPH/BTEXN/ Heavy Metals
TP17-02	E - 530594 N - 5316913	Additional grid location in old workshop	0.5	Silty sand	Coarse	Moist	Yellow / beige No staining	No odour	-	Grid sample	TRH/TPH/BTEXN/ Heavy Metals
TP18-01	E - 530537 N - 5317005	Additional grid location in northwest of site	0.1	Gravelly sand	Coarse	Dry	Beige No staining	No odour	-	Grid sample	TRH/TPH/BTEXN/ Heavy Metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
TP18-02	E - 530537 N - 5317005	Additional grid location in northwest of site	0.4	Sand	Coarse	Dry	Yellow / orange No staining	No odour	-	Grid sample	TRH/TPH/BTEXN/ Heavy Metals
TP19-01	E - 530596 N - 5316992	Additional grid location in northwest of site	0.1	Gravelly fill	Coarse	Dry	Light brown No staining	No odour	-	Grid sample	TRH/TPH/BTEXN/ Heavy Metals
TP19-02	E - 530596 N - 5316992	Additional grid location in northwest of site	0.3	Sandy loam	Coarse	Dry	Black / brown	No odour	-	Grid sample	TRH/TPH/BTEXN/ Heavy Metals
TARGET LOCATION 1 – DIESEL AST CONTAMINATION REMEDIATION AND VALIDATION – PART 1 HYDROCARBON REMEDIAL WORKS: 20/02/18											
Trip Blank	ALS – Trip blank-20/02/18										
ACM1	Refer to figures	SE of Main Workshop (Target Location 14)	Surface	Triangle shaped, dimple-back piece (16cm x 9cm), grey – likely ACM						Potential ACM fragment	Presence/ absence of asbestos fibres
ACM2	Refer to figures	SE corner of Main Workshop (Target Location 14)	Surface	Polygon shaped, dimple back fragment (7cm x 8cm), grey – likely ACM						Potential ACM fragment	Presence/ absence of asbestos fibres
ACM3	Refer to figures	Removed AST1 (Target Location 1)	Surface	Rectangular shaped piece (9cm x 6cm) plus small fragments, painted white, fibrous, internal wall material – possibly ACM						Potential ACM fragments	Presence/ absence of asbestos fibres

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
T1-01	Refer to figures	SE wall, south of SW manhole	0.8	Fine sand	Fine	Moist	Orange / brown No staining	Slight sulphidic odour	0	Former storage of fuel (diesel & poss. petrol)	TRH/TPH/BTEXN/ PAH/phenols/Pb
T1-02	Refer to figures	SE wall, along south wall	0.8	Silty clay	Fine	Moist	Grey / brown Black specks (coal?)	Slight sulphidic odour	0	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb
Triplicate 1	ALS - Triplicate of T1-02										
Triplicate 2	Eurofins – Triplicate of T1-02										
T1-03	Refer to figures	SW of south wall	0.7	Silty sand	Fine	Moist	Orange / grey No staining	Slight sulphidic odour	0	Former storage of fuel (diesel and possibly petrol	TRH/TPH/BTEXN/ PAH/phenols/Pb
T1-04	Refer to figures	West wall, south end	0.8	Sandy clay	Fine	Moist	Orange / grey No staining	Slight sulphidic odour	0	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb
DT1	Refer to figures	Dog Trailer #1	-	Sand and gravel	Coarse	Moist	Grey / brown No staining	Slight diesel odour	103	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb
DT2	Refer to figures	Dog Trailer #2	-	Sand, gravel and Building demolition rubble (BDR)	Coarse	Moist	Brown No staining	Slight diesel odour	109	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
Duplicate 1	ALS - Duplicate of DT2										
T1-05	Refer to figures	South wall	1.2	Sand	Coarse	Moist	Orange / brown No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb
T1-06	Refer to figures	West wall, southern half	1.3	Sand	Coarse	Moist	Orange / brown No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb
T1-07	Refer to figures	West wall, northern half	1.3	Sand	Coarse	Moist	Orange / brown No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb
T1-08	Refer to figures	West of sewer pit	1.2	Gravelly sand	Coarse	Dry	Brown No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb
T1-09	Refer to figures	North of sewer pit	1.2	Gravelly sand	Coarse	Dry	Brown No staining	No odour	1.8	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb
T1-10	Refer to figures	East of sewer pit	1.2	Gravelly sand	Coarse	Dry	Brown No staining	No odour	1.2	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb
T1-11	Refer to figures	NE wall	1.4	Sand	Coarse	Moist	Orange / brown No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
T1-12	Refer to figures	South – base	1.5	Sand	Coarse	Dry	Orange / brown No staining	No odour	19.3	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb
T1-13	Refer to figures	Centre – base	1.4	Sand	Coarse	Dry	Brown Green staining	Slight fuel odour	22.6	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb
T1-14	Refer to figures	North - base	1.5	Sand	Coarse	Dry	Brown Green staining	Slight fuel odour	43.2	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb
A1	-	Suspected 'clean' stockpile, north of remedial excavation	-	Gravelly sand	Coarse	Moist	Brown	No	0	Sampled for waste classification	TRH/TPH/BTEXN/ PAH/phenols/Pb
A3-1	-	Suspected 'clean' stockpile, west of remedial excavation	-	Gravelly sand	Coarse	Moist	Brown No staining	No	3.6	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb
Duplicate 2	ALS - Duplicate of A3-1										
A3-2	-	Suspected 'clean' stockpile, west of remedial excavation	-	Gravelly sand	Coarse	Moist	Brown No staining	No	1.2	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb
A4	-	As above	-	Gravelly sand	Coarse	Moist	Brown No staining	No	3.8	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
B1	-	Suspected 'contaminated' stockpiles	-	Gravelly sand	Coarse	Moist	Brown / orange Green staining	Fuel odour	27	Stockpiles laid on plastic and sampled for waste classification	TRH/TPH/BTEXN/ PAH/phenols/Pb
B5	-	As above	-	Gravelly sand	Coarse	Moist	Brown / orange Green staining	Fuel odour	11	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb
B12-1	-	As above	-	Gravelly sand	Coarse	Moist	Brown / orange Green staining	Fuel odour	54	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb
B12-2	-	As above	-	Gravelly sand	Coarse	Moist	Brown / orange Green staining	Fuel odour	41	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb
B12-3	-	As above	-	Gravelly sand	Coarse	Moist	Brown / orange Green staining	Fuel odour	52	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb
B16	-	As above	-	Gravelly sand	Coarse	Moist	Brown / orange Green staining	Fuel odour	77	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb
B20	-	As above	-	Gravelly sand	Coarse	Moist	Brown / orange Green staining	Fuel odour	52	As above	TRH/TPH/BTEXN/ PAH/phenols/Pb

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
Triplicate 3	ALS - Triplicate of B20										
Triplicate 4	Eurofins – Triplicate of B20										
TARGET LOCATION 2: 02/02/18 Notes: Tank excavation, lines/bowser excavation and backfill materials were evident when located. Backfill was removed (dug back to sandstone on base and walls) to expose visually clean base and walls. Samples were collected. No odours or evidence of fuel contamination was noted. Agreed UPSS1 was located in this area (pers comm. Craig Whatley, 02/02/18). There was a blacksmith on High Street, behind the Council Site which may have dumped charcoal, horse shoes, etc. (pers comm. Craig Whatley, 02/02/18).											
T2-Wall 1	E - 530583 N - 5316921	Former UPSS1, previously decommissioned	1.4	Sand (weathered sandstone)	Coarse	Dry	Yellow / orange No staining	No odour	0	Former storage of fuel underground	TRH/TPH/BTEXN/ PAH/heavy metals
T2-Wall 2	E - 530584 N - 5316923	As above	1.4	Sand (weathered sandstone)	Coarse	Dry	Yellow / orange No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/heavy metals
T2-Wall 3	E - 530585 N - 5316922	As above	1.3	Sand (weathered sandstone)	Coarse	Dry	Yellow / orange No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/heavy metals
T2-Wall 4	E - 530587 N - 5316923	As above	1.0	Sand (weathered sandstone)	Coarse	Dry	Yellow / orange No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/heavy metals
T2-Base	E - 530585 N - 5316922	As above	1.5	Sand (weathered sandstone)	Coarse	Dry	Yellow / orange No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/heavy metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
Triplicate 7	ALS - Triplicate of T2-Base										
Triplicate 8	Eurofins – Triplicate of T2-Base										
Rinsate-excavator bucket	ALS – Rinsate from excavator bucket										
Trip Blank	ALS – Trip blank										
TARGET LOCATION 3: 02/02/18 Notes: Tank was found to have hole(s) at both ends, at the bottom and was almost full of water. The water was contaminated with diesel. Water was drained into a bulka bin and sampled to enable classification for disposal. It is believed that vandals filled the tank with water.											
Tank Water	-	Waste water in the tank	-	-	-	-	-	Diesel odour	-	Diesel contamination	TRH/TPH/BTEXN/ PAH/phenols/
T3-fuel line	-	Fuel line base from tank to bowser	0.2	Sand	Coarse	Moist	Orange No staining	No odour	0	Possible diesel contamination	TRH/TPH/BTEXN/ PAH/phenols
T3-bowser base	-	Base of diesel bowser	0.3	Sand and gravel	Coarse	Dry	Orange No staining	No odour	0	Possible diesel contamination	TRH/TPH/BTEXN/ PAH/phenols
Backfill sand	-	From waste soil skip bin	-	Sand	Coarse	Moist	Brown / green	Diesel odour	4.8	UPSS had holes - leaking	TRH/TPH/BTEXN/ PAH/phenols

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
Duplicate 1	ALS – Duplicate of Backfill sand										
T3-Stockpile 1	-	Stockpiled material ('clean') for validation for reuse	-	Sand and gravel	Coarse	Moist	Brown / grey	Slight diesel odour	6.8	Former storage of fuel underground – diesel	TRH/TPH/BTEXN/ PAH/phenols
T3-Stockpile 2	-	As above	-	Sand and gravel	Coarse	Moist	Brown / grey	Slight diesel odour	0.6	As above	TRH/TPH/BTEXN/ PAH/phenols
T3-Wall 1	E - 530586 N - 5316969	UPSS2 tank pit excavation and validation	2.5	Ground sandstone	Coarse	Dry	Orange bedrock sandstone	No	0.5	As above	TRH/TPH/BTEXN/ PAH/phenols
T3-Wall 2	E - 530588 N - 5316967	As above	2.5	Ground sandstone	Coarse	Dry	Orange bedrock sandstone	No	0.6	As above	TRH/TPH/BTEXN/ PAH/phenols
T3-Wall 3	E - 530589 N - 5316964	As above	2.5	Ground sandstone	Coarse	Dry	Orange bedrock sandstone	No	0.3	As above	TRH/TPH/BTEXN/ PAH/phenols
T3-Wall 4	E - 530587 N - 5316966	As above	2.5	Ground sandstone	Coarse	Dry	Orange bedrock sandstone	No	0.4	As above	TRH/TPH/BTEXN/ PAH/phenols
T3-Base	E - 530588 N - 5316967	As above	2.5	Ground sandstone	Coarse	Dry	Orange bedrock sandstone	No	0.6	As above	TRH/TPH/BTEXN/ PAH/phenols

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
T3-Waste soil	-	Excavated sand and sandstone from tank pit	-	Sand and sandstone	Coarse	Moist	Orange / brown	Slight diesel odour	9.8	As above	TRH/TPH/BTEXN/ PAH/phenols
T3-rainwater (sampled 20/2/18)	E - 530588 N - 5316967	T3 accumulated rainwater	1.6	Silty, turbid rainwater	-	-	-	No odour	-	Water sample from soil target location T3	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
Rinsate Trowel	ALS – Rinsate sample from the trowel (used only for Target 3 – UPSS2)										
TARGET LOCATION 4: 01/02/18											
T4-01	E - 530579 N - 5316957	Wash Bay	0.2	Gravelly sand	Coarse	Dry	Grey / brown No staining	No	0	Vehicle and pesticide loading / filling, spills, washing oils and fuels etc	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals/ pesticides/ herbicides
T4-02	E - 530579 N - 5316953	As above	0.2	Gravelly sand	Coarse	Dry	Grey / brown No staining	No	0	As above	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals/ pesticides/ herbicides
T4-03	E - 530582 N - 5316950	As above	0.3	Gravelly sand	Coarse	Dry	Grey / brown No staining	No	0	As above	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals/ pesticides/ herbicides

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
T4-04	E - 530582 N - 5316954	As above	0.3	Gravelly sand	Coarse	Dry	Grey / brown No staining	No	0	As above	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals/ pesticides/ herbicides
Triplicate 5	ALS - Triplicate of T4-04										
Triplicate 6	Eurofins – Triplicate of T4-04										
T4-05	E - 530581 N - 5316953	As above	0.3	Gravelly sand	Coarse	Dry	Grey / brown No staining	No	0	As above	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals/ pesticides/ herbicides
TARGET LOCATION 5: 01/02/18											
T5-01	E - 530582 N - 5316966	Vehicle Service Shed & service pit	1.5	Sand	Coarse	Moist	Orange / brown No staining	No	1.5	Vehicle servicing and service pit	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
T5-02	E - 530586 N - 5316963	In service pit demolition excavation	1.3	Sand	Coarse	Moist	Orange / brown No staining	No	0	As above	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
T5-03	E - 530583 N - 5316961	In service pit demolition excavation	1.3	Sand	Coarse	Moist	Orange Green staining	Slight sulphidic	0	Green staining	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
Duplicate 3	ALS - Duplicate of T5-03										
T5-04	E - 530585 N - 5316962	In service pit demolition excavation	1.5	Sand	Coarse	Moist	Orange / brown No staining	No	0.1	Vehicle servicing and service pit	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
T5-05	E - 530586 N - 5316956	In service pit demolition excavation	1.5	Sand	Coarse	Moist	Orange Green staining	Slight sulphidic	0	Green staining	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
T5-06	E - 530582 N - 5316970	Northern end of Vehicle Service Shed and Store	0.2	Sand and gravel	Coarse	Dry	Beige / brown No staining	No	0	Vehicle servicing and store	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
T5-07	E - 530579 N - 5316969	As above	0.2	Sand and gravel	Coarse	Dry	Beige / brown No staining	No	0	As above	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
T5-08	E - 530575 N - 5316969	As above	0.3	Sand and gravel	Coarse	Dry	Beige / brown No staining	No	0	As above	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
T5-09	E - 530577 N - 5316966	As above	0.3	Sand and gravel	Coarse	Dry	Beige / brown No staining	No	0	As above	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
Rinsate-excavator	ALS – Rinsate from the excavator bucket										

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
TARGET LOCATION 6: 01/02/18 Notes: Also former pesticides store (pers comm. Craig Whatley, 01/02/18)											
T6-01	E - 530597 N - 5316922	Oil Store and former Pesticides Store	0.3	Sand	Coarse	Dry	Brown	No	0	Oil storage and former pesticide storage	TRH/TPH/BTEXN/ PAH/phenols/ pesticides/ herbicides
T6-02	E - 530599 N - 5316923	As above	0.3	Sand and soil	Coarse	Moist	Brown	No	0.5	As above	TRH/TPH/BTEXN/ PAH/phenols/ pesticides/ herbicides
TARGET LOCATION 11: 01/02/18 Notes: Rational for sampling depth – 0-0.2m new red gravel; 0.2-0.4m blue metal / coarse gravel; 0.4m+ underlying soil; samples taken in the soils as the red gravel and blue metal gravel were clean and likely more recent than the historical diesel surface spill. Grass died across the road from the spill to South Parade (pers. comm. Craig Whatley, 01/02/18)											
T11-01	E - 530560 N - 5316939	Diesel spill route, south to north towards South Parade	0.4	Gravelly sand and loam	Coarse	Dry	Beige / brown No staining	No odour	0	Possible diesel from 1993 spill route towards South Parade	TRH/TPH/BTEXN/ PAH/phenols
T11-02	E - 530599 N - 5316952	As above	0.5	Gravelly sand and loam	Coarse	Dry	Black / brown No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/phenols
T11-03	E - 530595 N - 5316966	As above	0.4	Gravelly sand and loam	Coarse	Dry	Beige / brown No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/phenols

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
T11-04	E - 530589 N - 5316977	As above	0.4	Gravelly sand and loam	Coarse	Dry	Beige / brown No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/phenols
T11-05	E - 530585 N - 5316986	As above	0.4	Gravelly sand and loam	Coarse	Dry	Beige / brown No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/phenols
T11-06	E - 530581 N - 5316994	As above	0.4	Gravelly sand and loam	Coarse	Dry	Beige / brown No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/phenols
T11-07	E - 530580 N - 5317003	As above	0.4	Gravelly sand and loam	Coarse	Dry	Beige / brown No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/phenols
T11-08	E - 530580 N - 5317019	As above	0.4	Gravelly sand and loam	Coarse	Dry	Beige / brown No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/phenols
TARGET LOCATION 13: 01/02/18											
T13-01	E - 530642 N - 5316921	End of suspected fuel line / corner of existing building	0.3	Sand	Coarse	Moist	Orange brown No staining	No odour	0	Former storage of fuel underground	TRH/TPH/BTEXN/ PAH/heavy metals
Triplicate 3	ALS - Triplicate of T13-01										
Triplicate 4	Eurofins – Triplicate of T13-01										

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
T13-02	E - 530632 N - 5316924	Suspected fuel line for suspected UPSS 3	0.4	Sand	Coarse	Moist	Orange / brown No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/heavy metals
TARGET LOCATION 14: 01/02/18											
T14-01	E - 530599 N - 5316906	Main Workshop demolition footprint	0.2	Sand	Coarse	Moist	Grey / brown No staining	No	0	Workshop activities	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
T14-02	E - 530590 N - 5316908	As above	0.3	Sand	Coarse	Dry	Brown / orange No staining	No	0	As above	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
T14-03	E - 530594 N - 5316919	As above	0.2	Sand and gravel	Coarse	Dry	Black burnt material	No	0	Workshop activities Blacksmith waste?	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
T14-04	E - 530601 N - 5316917	As above	0.2	Sand	Coarse	Dry	Grey No staining	No	0	Workshop activities	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
TARGET LOCATION 15: 01/02/18 Note: Trenches were dug to sandstone											
T15-01	E - 530637 N - 5316918	Former workshop area & possible UPSS	0.5	Sand	Coarse	Moist	Orange / brown No staining	No odour	0	Former workshop & possible UPSS	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
T15-02	E - 530633 N - 5316916	As above	0.5	Sand	Coarse	Moist	Orange / brown No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
T15-03	E - 530626 N - 5316921	As above	0.3	Sand	Coarse	Moist	Beige No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
T15-04	E - 530634 N - 5316921	As above	0.4	Sand	Coarse	Moist	Orange / brown No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
T15-05	E - 530623 N - 5316926	As above	0.3	Sand	Coarse	Moist	Brown No staining	No odour	0	As above	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
T15-06	E - 530639 N - 5316902	From BH1, in garden bed, west of Fish Building	0.4	Sand	Coarse	Dry / moist	Brown No staining	No odour	0	Former workshop activities	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
T15-07	E - 530635 N - 5316907	From BH2, in garden bed, west of Fish Building	0.5	Sand	Coarse	Dry / moist	Brown No staining	No odour	0	Former workshop activities	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
T15-08	E - 530629 N - 5316911	From BH3, in garden bed, west of Fish Building	0.3	Sand	Coarse	Dry / moist	Brown No staining	No odour	0	Former workshop activities	TRH/TPH/BTEXN/ PAH/phenols/ heavy metals
Rinsate - auger	ALS – Rinsate from excavator auger (auger washed with a hose between each test pit)										

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
TB2	ALS – Trip blank										
STOCKPILES A & B FOOTPRINTS VALIDATION: 28/05/18											
SV1	Refer to figures	Southern end of Stockpile A footprint	0.05	Gravelly sand	Coarse	Dry	Brown No staining	No odour	0	Stockpile A footprint validation	TPH/TRH & BTEXN
SV2	Refer to figures	Northern end of Stockpile A footprint	0.05	Gravelly sand	Coarse	Dry	Brown No staining	No odour	0	As above	TPH/TRH & BTEXN
SV3	Refer to figures	Southern end of Stockpile B footprint	0.05	Gravelly sand	Coarse	Dry	Brown No staining	No odour	0	Stockpile B footprint validation	TPH/TRH & BTEXN
SV4	Refer to figures	Southern end of Stockpile B footprint	0.05	Gravelly sand	Coarse	Dry	Brown No staining	No odour	0	As above	TPH/TRH & BTEXN
SV5	Refer to figures	Middle of Stockpile B footprint	0.05	Gravelly sand	Coarse	Dry	Brown No staining	No odour	0	As above	TPH/TRH & BTEXN
SV6	Refer to figures	Northern end of Stockpile B footprint	0.05	Gravelly sand	Coarse	Dry	Brown No staining	No odour	0	As above	TPH/TRH & BTEXN
V. Trip 1	ALS - Triplicate of SV6										

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
V. Trip 2	Eurofins – Triplicate of SV6										
Trip Blank	Trip blank										
Rinsate - trowel	Rinsate from trowel (trowel washed with a hose and wiped dry with paper towel between each sample)										
TARGET LOCATION 14 VALIDATION; remedial excavation of area around sample T14-03 which reported elevated heavy metals: 28/05/18											
T14-03-V01	Refer to figures	Base of T14-03 remedial excavation	0.6	Sand	Coarse	Moist	Pale grey No staining	No odour	0	Heavy metals & ACM	15 metals
SP-MET	Refer to figures	**T14-03 Stockpile**	-	Sand, gravel & glass fragments	Coarse	Moist	Dark grey	No odour	0	Heavy metals & ACM	15 metals & ACM

TP 10-02 REMEDIATION AND VALIDATION & EXTENSION OF TARGET 1 - PART 2 HYDROCARBON REMEDIAL WORKS: 30/05/18 - Notes:

- Contamination was beneath a layer of red gravel, between 0.2-0.5m thick.
- Contamination extended into a loamy horizon and often into the sand, silty sand, clayey sand weathered profile, then onto the sandstone bedrock slab at around 1m depth.
- Sources of contamination – believed to be mostly from the AST refuelling area but other spills are possible.
- Some green-stained sands have been left in the ground, where they had little or no odour and hydrocarbons are expected to have degraded sufficiently to not pose a risk to human health or ecological values.
- Found an old circular well or pit on the north-western side of the sewer pit (south-west end of the excavation) – it had a foul smell and was filled with used oil filters, rags, rubbish, green stained gravel and sand. There may have been an old power pole in the area (Nick Barwick, Council excavator operator pers. comm. 30/05/18). The pole may have been removed and the hole used as a fire pit. Old poles may have been treated with arsenic (copper, chrome, arsenic).
- No rinsate was collected as grab samples were collected using single use nitrile gloves (i.e. no reusable equipment).
- The remedial excavation extended to the width and depth of the pit in sandstone. Most of the wastes were removed from the pit to stockpile D; minor odours may remain in sandstone.

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
TP10V-01	Refer to figures	Validation samples from remedial excavation which started at TP10 – base; could be related to Target 1 – diesel AST contamination	0.8	Sand	Coarse	Moist	Orange / brown	Slight odour	0	Historical diesel spills and leaks	TPH/TRH & BTEXN
TP10V-02	Refer to figures	Base	0.8	Sand	Coarse	Moist	Orange	No odour	0	As above	TPH/TRH & BTEXN
TP10V-03	Refer to figures	Base	0.7	Sand	Coarse	Moist	Brown / orange	No odour	0	As above	TPH/TRH & BTEXN
TP10V-04	Refer to figures	Base	0.6	Sand	Coarse	Moist	Orange	No odour	0	As above	TPH/TRH & BTEXN
TP10V-05	Refer to figures	Wall	0.7	Sand	Coarse	Moist	Grey	No odour	0	As above	TPH/TRH & BTEXN
Trip 1 30.5	ALS - Triplicate of TP10V-05										
Trip 2 30.5	Eurofins – Triplicate of TP10V-05										

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
TP10V-06	Refer to figures	Wall	0.7	Sand	Coarse	Moist	Orange / grey / green	No odour	0	As above	TPH/TRH & BTEXN
TP10V-07	Refer to figures	Wall	0.6	Sand	Coarse	Moist	Orange / grey / green	No odour	0	As above	TPH/TRH & BTEXN
TP10V-08	Refer to figures	Wall	0.7	Sand	Coarse	Moist	Grey / green	Slight decay odour	0	Diesel & petrol	TPH/TRH & BTEXN
TP10V-09	Refer to figures	Base	0.7	Sand	Coarse	Moist	Grey /green	Slight decay odour	0	As above	TPH/TRH & BTEXN
TP10V-10	Refer to figures	Base	0.7	Sand	Coarse	Moist	Grey / brown	No odour	0	As above	TPH/TRH & BTEXN
TP10V-11	Refer to figures	Base	0.7	Sand	Coarse	Moist	Grey / brown	Decay odour	0	As above	TPH/TRH & BTEXN
TP10V-12	Refer to figures	Base	0.8	Sand	Coarse	Moist	Grey / orange	Decay odour	0	As above	TPH/TRH & BTEXN

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
TP10V-13	Refer to figures	Base	0.7	Sand	Coarse	Moist	Orange	No odour	0	As above	TPH/TRH & BTEXN
TP10V-14	Refer to figures	Base	0.8	Sand	Coarse	Moist	Grey	Slight odour	0	As above	TPH/TRH & BTEXN
Trip Blank	ALS – Trip blank										
TP10V-15	Refer to figures	Base	0.7	Sand	Coarse	Moist	Brown	Slight odour	1.2	As above	TPH/TRH & BTEXN
TP10V-16	Refer to figures	Wall	0.7	Sand	Coarse	Moist	Orange	Slight odour	0	As above	TPH/TRH & BTEXN
TP10V-17	Refer to figures	Wall	0.7	Sand	Coarse	Moist	Orange	Slight odour	0.6	As above	TPH/TRH & BTEXN
TP10V-18	Refer to figures	Wall	0.7	Sand	Coarse	Moist	Orange	Slight odour	1.7	As above	TPH/TRH & BTEXN

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
Continued - TP10-02 VALIDATION: 31/05/18											
TP10V-19	Refer to figures	Wall	0.7	Sand	Coarse	Moist	Pale brown / orange	No odour	0	Diesel & petrol	TPH/TRH & BTEXN
TP10V-20	Refer to figures	Wall	0.7	Sand	Coarse	Moist	Pale brown / orange	No odour	0	As above	TPH/TRH & BTEXN
TP10V-21	Refer to figures	Wall	0.7	Sand	Coarse	Moist	Brown with slight green staining	Slight odour	1.0	As above	TPH/TRH & BTEXN
FILL DELINEATION & TESTING FOR ACM (follow up from ACM1 and ACM2 positive asbestos samples, found on south side of former workshop, Target 14): 31/05/18											
Fill 1	Refer to figures	Fill on west end at "Jenny's"	0-0.5	Loamy gravel & building demolition rubble (BDR)	Coarse	Moist	Brown	No odour	-	ACM & possible metals	ACM bulk, ACM fibres & metals
Fill 2	Refer to figures	Fill in small pit adjacent to building	0-0.5	Loamy gravel & BDR	Coarse	Moist	Brown	No odour	-	As above	ACM bulk, ACM fibres & metals
Fill 3	Refer to figures	Stockpile adjacent to Trench A	-	Loamy gravel & BDR	Coarse	Moist	Brown	No odour	-	As above	ACM bulk, ACM fibres & metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
ACM-SP1	Refer to figures	Original fill with confirmed ACM fragments	-	Loamy gravel & BDR	Coarse	Moist	Brown	No odour	-	As above	ACM bulk, ACM fibres & metals
Fill 4	Refer to figures	Stockpile adjacent to trench on NE side of Community Centre building (Trench B)	-	Loamy gravel & BDR	Coarse	Moist	Brown	No odour	-	As above	ACM bulk, ACM fibres & metals
Fill 5	Refer to figures	Stockpile from Trench C	-	Loamy, gravelly sand	Coarse	Moist	Brown	No odour	0	As above	ACM bulk, ACM fibres & metals
Fill 6	Refer to figures	As above	-	Loamy, gravelly sand	Coarse	Moist	Brown	No odour	0	As above	ACM bulk, ACM fibres & metals
Fill 7	Refer to figures	Stockpile from Trench D	-	Loamy, gravelly sand	Coarse	Moist	Brown	No odour	0	As above	ACM bulk, ACM fibres & metals
Fill 8	Refer to figures	As above	-	Loamy, gravelly sand	Coarse	Moist	Brown	No odour	0	As above	ACM bulk, ACM fibres & metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
STOCKPILES OF SOILS REMOVED FROM TP10-02, PART 2 HYDROCARBON REMEDIAL EXCAVATION: 01/06/18											
C1	Refer to figures	Low grade hydrocarbon contaminated stockpiles	-	Sand and gravel	Coarse	Moist	Greeny / grey	Slight odour	0	Hydrocarbons, diesel & petrol	TPH/TRH & BTEXN
C2	Refer to figures	As above	-	Sand and gravel	Coarse	Moist	Greeny / grey	Slight odour	0	As above	TPH/TRH & BTEXN
C3	Refer to figures	As above	-	Sand and gravel	Coarse	Moist	Greeny / grey	Slight odour	0	As above	TPH/TRH & BTEXN
C4	Refer to figures	As above	-	Sand and gravel	Coarse	Moist	Dark brown	Slight odour	0	As above	TPH/TRH & BTEXN
D1	Refer to figures	Large stockpile of contaminated soils, including pit wastes from possible 'fire pit'	-	Sand, gravel & metal (blacksmith wastes) & oil filters	Coarse	Moist	Dark brown	Mixed odours - fuel, oil & other chemicals	0	Hydrocarbons, blacksmith wastes & waste dump pit, oils, soot	IB105
Triplicate 1	ALS - Triplicate of D1										
Triplicate 2	Eurofins – Triplicate of D1										

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
Trip Blank	ALS – Trip blank										
D2	Refer to figures	Large stockpile of contaminated soils, including pit wastes from possible 'fire pit'	-	Sand, gravel & metal (blacksmith wastes) & oil filters	Coarse	Moist	Dark brown	Mixed odours - fuel, oil & other chemicals	0	Hydrocarbons, blacksmith wastes & waste dump pit, oils, soot	IB105
D3	Refer to figures	As above	-	Sand, gravel & metal (blacksmith wastes) & oil filters	Coarse	Moist	Dark brown	Mixed odours - fuel, oil & other chemicals	0.7	As above	IB105
D4	Refer to figures	As above	-	Sand, gravel & sandstone	Coarse	Moist	Beige / orange	Fuel odour	1.8	Hydrocarbons & IB105 due to proximity to dark material	IB105
D5	Refer to figures	As above	-	Sand, gravel & sandstone	Coarse	Moist	Greeny / brown	Fuel odour	2.1	As above	IB105
E1	Refer to figures	Higher grade hydrocarbon contaminated stockpile – on plastic at north end	-	Sand and sandstone	Coarse	Moist	Yellow & pale grey / green	Strong fuel odour	4.6	Hydrocarbons, diesel & petrol	TPH/TRH & BTEXN

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
TRENCH EXCAVATIONS – TO TEST FOR POSSIBLE LATERAL EXTENSIONS OF HYDROCARBON CONTAMINATION: 21/06/18 Notes: - **Trenches were excavated to bedrock.** - Trench 1 – dimensions = 17m long x 0.5m wide x 0.7m deep - Trench 2 – dimensions = 2m long x 0.5m wide x 0.7-1.2m deep - Trench 3 – dimensions = 12.5m long x 0.5m wide x 0.8m deep - Trench 4 – dimensions = 11m long x 0.5m wide x 0.75m deep											
Trench 1a	E - 530597 N - 5316947	East of remedial excavation	0.6	Sand (weathered sandstone & loam)	Coarse	Moist	Grey / brown	No odour	-	Possible hydrocarbons	TRH & BTEXN
Triplicate 1	ALS - Triplicate of Trench 1a										
Triplicate 2	Eurofins – Triplicate of Trench 1a										
Trench 1b	E - 530608 N - 5316958	East of remedial excavation	0.5	Sand (weathered sandstone & loam)	Coarse	Moist	Yellow / brown	No odour	-	Possible hydrocarbons	TRH & BTEXN
Trench 2a	E - 530603 N - 5316935	Eastern end of sewer manhole	0.7	Sand & gravel (weathered sandstone & loam)	Coarse	Moist / wet	Brown / yellow / orange	No odour	-	As above	TRH & BTEXN

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
Trench 3a	E - 530587 N - 5316938	West of remedial excavation	0.8	Sand / weathered sandstone	Coarse	Moist	Beige	No odour	-	As above	TRH & BTEXN
Trench 3b	E - 530581 N - 5316935	As above	0.7	Sand / weathered sandstone	Coarse	Moist	Green / grey	Slight decayed fuel odour	-	As above	TRH & BTEXN
Trench 3c	E - 530578 N - 5316935	As above	0.7	Sand / weathered sandstone	Coarse	Moist	Yellow / orange	No odour	-	As above	TRH & BTEXN
Trench 4a	E - 530578 N - 5316945	West of remedial excavation between TP11 & TP12	0.7	Sand, weathered sandstone & loam	Coarse	Moist	Grey / green / dark brown	Slight decayed fuel odour	-	Possible hydrocarbons	TRH & BTEXN
Trench 4b	E - 530571 N - 5316943	As above	0.6	Sand, weathered sandstone & loam	Coarse	Moist	Grey / green / dark brown	Slight decayed fuel odour	-	As above	TRH & BTEXN
Trip Blank	ALS – Trip blank (made up of volatiles rinsate solution put into a vial)										

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
TRENCH EXCAVATIONS - TO TEST FOR POSSIBLE LATERAL EXTENSIONS OF HYDROCARBON CONTAMINATION & TEST FOR PRESENCE OF POSSIBLE ACM-CONTAINING FILL: 12/09/18 TRENCH 6 REMEDIAL EXCAVATION (PART 3 of HYDROCARBON REMEDIAL WORKS) Notes: - **Trenches were excavated to sandstone bedrock.** - Trench 5 – dimensions = 7m long x 0.5m wide x 0.9m deep. No ACM noted in trench, some glass, crockery, red brick fragments & pieces of concrete pipe mixed in with red gravel - Trench 6 – dimensions = 7m long x 0.5m wide x 0.6 to 0.8m deep; plus a small remedial excavation which resulted in a waste soil stockpile volume of 6m^3.											
TR5-01	Refer to figures	Trench 5 - south-eastern part of Property	0.2	Gravel	Coarse	Moist	Red – no staining	No odour	0	Possible hydrocarbon spills / fill / BDR / ACM	TRH / BTEXN & metals
TR5-02	Refer to figures	As above	0.3	Gravel	Coarse	Moist	Blue-green staining	Slight fuel odour	11	As above	TRH / BTEXN & metals
TR5-03	Refer to figures	As above	0.5	Loamy sand	Coarse-fine	Moist	Black / brown	Slight fuel odour	1.1	As above	TRH / BTEXN & metals
TR5-04	Refer to figures	As above	0.7	Silty clay	Fine	Moist	Grey / blue, orange mottled	No odour	0.3	As above	TRH / BTEXN & metals
Triplicate 1	ALS - Triplicate of TR5-04										
Triplicate 2	Eurofins – Triplicate of TR5-04										

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
TR5-05	Refer to figures	Trench 5 - south-eastern part of Property	0.9	Weathered sandstone / sand	Fine-coarse	Moist	Orange	No odour	0	Possible hydrocarbon spills / fill / BDR / ACM	TRH / BTEXN & metals
TR6-01	Refer to figures	Trench 6 – parallel to Target 1, AST first hydrocarbon remedial excavation	0.3	Sandy loam	Fine-coarse	Moist	Brown / black	No odour	0	Hydrocarbon spills & possible fill material	TRH / BTEXN & metals
TR6-02	Refer to figures	As above	0.7	Silty sand (weathered sandstone)	Fine	Moist	Orange	No odour	0	As above	TRH / BTEXN & metals
TR6-03	Refer to figures	As above	0.3	Sandy loam	Fine-coarse	Moist	Brown / black	Slight loamy odour	0	As above	TRH / BTEXN & metals
TR6-04	Refer to figures	As above	0.7	Silty sand (weathered sandstone)	Fine	Moist	Orange	No odour	0	As above	TRH / BTEXN & metals
TR6-05	Refer to figures	As above	0.2	Gravel	Coarse	Dry	Red / brown	No odour	0	As above	TRH / BTEXN & metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
TR6-06	Refer to figures	Validation of remedial excavation from Trench 6 – west wall	0.5	Loamy sand	Fine-coarse	Moist	Black / brown	Slight loamy odour	0	As above	TRH / BTEXN & metals
TR6-07	Refer to figures	Validation of remedial excavation from Trench 6 – north wall	0.6	Sand (weathered sandstone)	Fine-coarse	Moist	Greeny orange	Slight odour	0	Diesel spill	TRH / BTEXN & metals
TR6-08	Refer to figures	Validation of remedial excavation from Trench 6 – east wall	0.6	Sand (weathered sandstone)	Coarse	Moist	Orange	No odour	0	As above	TRH / BTEXN & metals
Duplicate	ALS - Duplicate of TR6-08										
TR6-09	Refer to figures	Validation of remedial excavation from Trench 6 – east wall	0.7	Sand (weathered sandstone)	Coarse	Moist	Orange	Slight odour	0	As above	TRH / BTEXN & metals
TR6-10	Refer to figures	Validation of remedial excavation from Trench 6 – south wall	0.7	Sand (weathered sandstone)	Coarse	Moist	Orange	Slight odour	0	As above	TRH / BTEXN & metals
TR6-11	Refer to figures	Validation of remedial excavation from Trench 6 – floor	0.7	Sand (weathered sandstone)	Coarse	Moist	Orange – greeny / blue	Slight odour	0	As above	TRH / BTEXN & metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
TR6-SP1	Refer to figures	Waste soils from remedial excavation along Trench 6	-	Sandstone & gravel	Coarse	Moist	Orange – greeny / blue	Diesel odour	26	As above	TRH / BTEXN & metals
PART 4 HYDROCARBON REMEDIAL EXCAVATION: ALONG SEWER LINE, WEST OF PART 1 & PART 2 HYDROCARBON REMEDIAL EXCAVATIONS: 12/9/2018 Notes: • All waste soils were added to waste soils Stockpile D • Hydrocarbon contamination ended prior to the trench reaching the western gate (Church Street gate)											
SWP01	Refer to figures	Sewer trench – chasing out diesel contamination	1.35	Sand (weathered sandstone)	Coarse	Moist	Orange / brown	No odour	0	Diesel contamination	TRH / BTEXN & metals
SWP02	Refer to figures	As above	1.3	Sand (weathered sandstone)	Coarse	Moist	Orange / brown	No odour	0	As above	TRH / BTEXN & metals
SWP03	Refer to figures	As above	1.3	Sand (weathered sandstone)	Coarse	Moist	Orange / brown	No odour	0	As above	TRH / BTEXN & metals
SWP04	Refer to figures	As above	1.3	Clayey sandstone	Coarse	Moist	Orange / grey	No odour	0	As above	TRH / BTEXN & metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
SWP05	Refer to figures	As above	1.3	Sand / sandstone	Coarse	Moist	Orange / brown	No odour	0	As above	TRH / BTEXN & metals
Trip Blank	Trip blank (water)										
STOCKPILE BIOREMEDIATION: 12/09/18 **Notes: all piles were inspected prior to sampling; the worst pile was sampled for bioremediation testing; most odours had disappeared.**											
L3-12.9.18	Level 3 stockpiles – bioremediation progress sampling										
ADDITIONAL GRID TEST PIT LOCATIONS: 1/11/18 Notes: Added to provide stand-alone grid coverage for the proposed residential lot and the extension to the Community Centre Lot.											
TP17-01	E - 530594 N - 5316913	Former workshop - grid	0.1	Gravel, wastes & soot	Coarse	Dry	Brown / black	No odour	0	Hydrocarbons & metals	TRH / BTEXN & metals
TP17-02	E - 530594 N - 5316913	As above	0.5	Silty sand	Fine-coarse	Dry-moist	Yellow / beige	No odour	0	As above	TRH / BTEXN & metals
Triplicate 1	ALS - Triplicate of TP17-01										
Triplicate 2	Eurofins – Triplicate of TP17-01										

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
TP18-01	E - 530537 N - 5317005	Residential Lot - grid	0.1	Gravel & sand	Coarse	Dry	Beige	No odour	0	Hydrocarbons & metals	TRH / BTEXN & metals
TP18-02	E - 530537 N - 5317005	As above	0.4	Sand	Fine-coarse	Dry-moist	Yellow / orange	No odour	0	As above	TRH / BTEXN & metals
TP19-01	E - 530596 N - 5316992	Residential Lot – south-east corner	0.1	Gravel & sand	Coarse	Dry	Light brown	No odour	0	As above	TRH / BTEXN & metals
TP19-02	E - 530596 N - 5316992	As above	0.3	Sandy loam	Fine-coarse	Dry-moist	Brown / black	No odour	0	As above	TRH / BTEXN & metals
Trip Blank	ALS – Trip blank										
Rinsate - bucket	ALS – Rinsate off the excavator bucket (bucket hosed down between test pits if residues were present on the bucket)										
STOCKPILES FOOTPRINTS VALIDATION: 1/11/18 Notes: Validation samples were collected with single-use nitrile gloves via a grab sample of surface soils.											
L2-V1	Refer to figures	Footprint of large L2 stockpile, north of old workshop	0-0.05	Gravelly sand, blue-metal gravels	Coarse	Dry	Brown / grey	No odour	0	Hydrocarbons & metals	TRH / BTEXN & metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
L2-V2	Refer to figures	As above	0-0.05	Gravelly sand, blue-metal gravels	Coarse	Dry	Brown / grey	No odour	0	As above	TRH / BTEXN & metals
L2-V3	Refer to figures	As above	0-0.05	Gravelly sand, blue-metal gravels	Coarse	Dry	Brown / grey	No odour	0	As above	TRH / BTEXN & metals
L2-V4	Refer to figures	As above	0-0.05	Gravelly sand, blue-metal gravels	Coarse	Dry	Brown / grey	No odour	0	As above	TRH / BTEXN & metals
L2-V5	Refer to figures	Footprint of small L2 stockpile from Trench 6	0-0.05	Gravelly sand, blue-metal gravels	Coarse	Dry	Brown / grey	No odour	0	As above	TRH / BTEXN & metals
L1-V1	Refer to figures	Footprint / base of large L1 stockpile (NE of large hydrocarbon excavation)	0-0.05	Gravelly sand, blue-metal gravels	Coarse	Dry	Grey / beige	No odour	0	Hydrocarbons	TRH / BTEXN & metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
L1-V2	Refer to figures	As above	0-0.05	Gravelly sand, blue-metal gravels	Coarse	Dry	Grey / beige	No odour	0	As above	TRH / BTEXN & metals
L1-V3	Refer to figures	As above	0-0.05	Gravelly sand, blue-metal gravels	Coarse	Dry	Grey / beige	No odour	0	As above	TRH / BTEXN & metals
L3-V1	Refer to figures	Centre footprint of L3 stockpile that bioremediated to L1	0-0.05	Gravelly sand, blue-metal gravels	Fine-coarse	Moist	Brown / orange	No odour	0	As above	TRH / BTEXN & metals
Duplicate	ALS - Duplicate of L3-V1										
REMEDIAL EXCAVATION OF METALS-IMPACTED SOOTY SOILS AROUND TP17-01 AND AROUND TARGET 14-FORMER WORKSHOP AREA: 18/12/2018 Notes: • All sooty soils were chased out and excavated and stockpiled north of the Church St gate, on plastic, in an area 6m x 16m • Excavation validation samples were taken from walls and floor which ranged generally to around 0.5m depth, except in one 'trench' related to UPSS1 test work • Waste stockpile samples were taken from the approximately 88m^3 of waste sooty soils											
MR01	Refer to figures	Metals / sooty soils remedial excavation validation	0.2	Sand	Fine-coarse	Moist	Grey	No odour	Not tested	Heavy metals from blacksmith?	Heavy metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
MR02	Refer to figures	Metals / sooty soils remedial excavation validation	0.2	Sand	Fine-coarse	Dry	Light grey	No odour	Not tested	Heavy metals from blacksmith?	Heavy metals
MR03	Refer to figures	As above	0.3	Sand	Fine-coarse	Dry	Brown-grey	No odour	Not tested	Heavy metals from blacksmith?	Heavy metals
MR04	Refer to figures	As above	0.2	Sand	Fine-coarse	Dry	Brown	No odour	Not tested	Heavy metals from blacksmith?	Heavy metals
MR05	Refer to figures	As above	0.5	Sand	Fine-coarse	Dry	Brown-grey	No odour	Not tested	Heavy metals from blacksmith?	Heavy metals
MR06	Refer to figures	As above	0.3	Sand	Fine-coarse	Dry	Beige-brown	No odour	Not tested	Heavy metals from blacksmith?	Heavy metals
MR07	Refer to figures	As above	0.5	Sand	Fine-coarse	Moist	Brown-orange	No odour	Not tested	Heavy metals from blacksmith?	Heavy metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
MR08	Refer to figures	Metals / sooty soils remedial excavation validation	1.1	Sand	Fine-coarse	Moist	Brown-orange	No odour	Not tested	Heavy metals from blacksmith?	Heavy metals
MR09	Refer to figures	As above	0.8	Sand	Fine-coarse	Moist	Brown-orange	No odour	Not tested	Heavy metals from blacksmith?	Heavy metals
MR10	Refer to figures	As above	0.2	Sand	Fine-coarse	Moist	Brown-grey	No odour	Not tested	Heavy metals from blacksmith?	Heavy metals
MR11	Refer to figures	As above	0.3	Sand	Fine-coarse	Moist	Brown-grey	No odour	Not tested	Heavy metals from blacksmith?	Heavy metals
MR12	Refer to figures	As above	0.4	Sand	Fine-coarse	Moist	Brown-grey	No odour	Not tested	Heavy metals from blacksmith?	Heavy metals
MR13	Refer to figures	As above	0.4	Sand	Fine-coarse	Moist	Brown-grey	No odour	Not tested	Heavy metals from blacksmith?	Heavy metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
MR14	Refer to figures	Metals / sooty soils remedial excavation validation	0.5	Sand	Fine-coarse	Moist	Brown-grey	No odour	Not tested	As per MS04	Heavy metals
Triplicate 1	Of MR01 to ALS	-	-	-	-	-	-	-	-	As per MR01	As per MR01
Triplicate 2	Of MR01 to Eurofins	-	-	-	-	-	-	-	-	As per MR01	As per MR01
MS01	Refer to figures	Stockpile of waste soils from metals/sooty soil remedial excavation	-	Sand	Fine-coarse	Moist	brown	No odour	Not tested	As per MS04	PAH & heavy metals
MS02	Refer to figures	As above	-	Sand	Fine-coarse	Moist	brown	No odour	Not tested	As per MS04	PAH & heavy metals
MS03	Refer to figures	As above	-	Sand	Fine-coarse	Moist	brown	No odour	Not tested	As per MS04	PAH & heavy metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
MS04	Refer to figures	As above	-	Sand	Fine-coarse	Moist	brown	No odour	Not tested	As per MS04	PAH & heavy metals
DUP	Duplicate of MS04	-	-	-	-	-	-	-	-	As per MS04	As per MS04
VALIDATION SAMPLING OF LEAD-CONTAMINATED SOIL STOCKPILE FOOTPRINT: 14/5/2019 Notes: • Trowel was used to break-up the hardened surface • Samples were taken with single-use nitrile gloves changed after each sample jar was filled • Trowel was wiped clean with paper towel between each sampling location • Distilled water was used to take a rinsate off the cleaned trowel											
OPbVal01	Refer to figures	Footprint of metals/lead-impacted waste soils	0-0.05	Gravel, sand, clay	Coarse	Moist	Dark brown-grey	No odour	Not tested	Lead contamination	Heavy metals
OPbVal02	Refer to figures	As above	0-0.05	Gravel, sand, clay	Coarse	Moist	Dark brown-grey	No odour	Not tested	Lead contamination	Heavy metals
OPbVal03	Refer to figures	As above	0-0.05	Gravel, sand, clay	Coarse	Moist	Dark brown-grey	No odour	Not tested	Lead contamination	Heavy metals

SAMPLE ID	GPS COORDS	SAMPLING LOCATION (CONTEXT)	SAMPLE DEPTH (M)	SOIL TYPE (LOAM, SAND, SILT, CLAY, GRAVEL, FILL)	TEXTURE (FINE, COARSE)	MOISTURE (DRY, MOIST, WET)	COLOUR / STAINING	ODOUR	PID (PPM)	CONTAMINATION ISSUES (STAINING, TARGET, ETC.)	ANALYTES
OPbVal04	Refer to figures	As above	0-0.05	Gravel, sand, clay	Coarse	Moist	Dark brown-grey	No odour	Not tested	Lead contamination	Heavy metals
OPbVal05	Refer to figures	As above	0-0.05	Gravel, sand, clay	Coarse	Moist	Dark brown-grey	No odour	Not tested	Lead contamination	Heavy metals
DUP	Of **OPbVal02**	As above	0-0.05	Gravel, sand, clay	Coarse	Moist	Dark brown-grey	No odour	Not tested	Lead contamination	Heavy metals
Rinsate (trowel)	-										

Notes:
ACM: asbestos-containing material
BTEXN: benzene, toluene, ethyl-benzene, xylenes and naphthalene
PAH: polycyclic Aromatic Hydrocarbons
TPH: total petroleum hydrocarbons
TRH: total recoverable hydrocarbons
Pb: lead

Appendix J – Test Pit Logs

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	TP1

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	31/01/18	31/01/18
EXCAVATION METHOD	**WELL/LOG DIAMETER**	**SAMPLING METHOD**	
Excavator	N/A	Grab sample	
SITE COORDINATES	**EXCAVATION DIMENSIONS (LENGTH & WIDTH)**		
E: 530581 N: 5316981	1.5m x 0.5m		
SURFACE RL	**DATUM**	**COVA PERSONNEL**	**SHEET NO.**
N/A	N/A	Fiona Keserue-Ponte	1 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1	0.1	0	Gravel and sand	F	D	C	No odour Road base and gravel
0.2							
0.3							
0.4							
0.5							
0.6							
0.7	0.2	0	Loamy gravel	R/F	M	C	(PID alarm beeped but read 0 ppm)
0.8			Loam (0.2m)	R			Original site surface
0.9			Sand (0.1m)	R			Yellow / orange
1.0			Sandstone	R			End of Hole Depth – 1.0m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	TP2

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	31/01/18	31/01/18
EXCAVATION METHOD	**WELL/LOG DIAMETER**	**SAMPLING METHOD**	
Excavator	N/A	Grab sample	
SITE COORDINATES	**EXCAVATION DIMENSIONS (LENGTH & WIDTH)**		
E: 530576 N: 5316990	1.5m x 0.5m		
SURFACE RL	**DATUM**	**COVA PERSONNEL**	**SHEET NO.**
N/A	N/A	Fiona Keserue-Ponte	2 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1	01		Cobbles / gravel / sand	F	D	C	No
0.2							
0.3							
0.4	02		Loamy gravel	F/R	M	C	Loamy
0.5			Sandstone	R	D		Bedrock
0.6							
0.7							
0.8							
0.9							
1.0							End of Hole Depth – 1.0m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	TP3

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	31/01/18	31/01/18
EXCAVATION METHOD	WELL/LOG DIAMETER	SAMPLING METHOD	
Excavator	N/A	Grab sample	
SITE COORDINATES	EXCAVATION DIMENSIONS (LENGTH & WIDTH)		
E: 530562 N: 5317001	1.5m x 0.5m		
SURFACE RL	DATUM	COVA PERSONNEL	SHEET NO.
N/A	N/A	Fiona Keserue-Ponte	3 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1	01	0	Cobbles and sand	F	D	C	Fill / road base Red / brown
0.2							
0.3			Loamy sand	R	M-D	C	Residual soil layer with rootlets Brown
0.4							
0.5	02	0	Weathered sandstone				Sand / gravel Grey / brown (PID beeped – possibly due to moisture?)
0.6							
0.7			Sandstone				Bedrock sandstone Red / orange / yellow
0.8							
0.9							
1.0							End of Hole Depth – 0.7m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	TP4

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	31/01/18	31/01/18
EXCAVATION METHOD	WELL/LOG DIAMETER	SAMPLING METHOD	
Excavator	N/A	Grab sample	
SITE COORDINATES	EXCAVATION DIMENSIONS (LENGTH & WIDTH)		
E: 530584 N: 5317013	1.5m x 0.5m		
SURFACE RL	DATUM	COVA PERSONNEL	SHEET NO.
N/A	N/A	Fiona Keserue-Ponte	4 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1	01	0	Gravelly / sandy fill	F	D	C	Site fill material – read / brown with coarse brown cobbles & gravel & hardstand / road base, no odour
0.2							
0.3	02	0	Sandy, gravelly loam	R	M	C	Dark brown, loamy, sandy soil, residual surface
0.4			Weathered sandstone	R	M-D	C	Grey / brown, sandy gravel – weathered sandstone
0.5							
0.6			Sandstone	R	D	C	Yellow / orange, sandstone bedrock
0.7							
0.8							
0.9							
1.0							End of Hole Depth – 1.3m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	TP5

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	31/01/18	31/01/18
EXCAVATION METHOD	WELL/LOG DIAMETER	SAMPLING METHOD	
Excavator	N/A	Grab sample	
SITE COORDINATES	EXCAVATION DIMENSIONS (LENGTH & WIDTH)		
E: 530592 N: 5316999	1.5m x 0.5m		
SURFACE RL	DATUM	COVA PERSONNEL	SHEET NO.
N/A	N/A	Fiona Keserue-Ponte	5 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.2	01		Gravel & cobbles	F	D	C	hardstand- red / brown & white, gravelly sand fill with cobbles
0.4			Cobbles, sand, gravel & loam	F	M	C	Brown cobbles & soil & weathered sandstone with pieces of tin, carbon fibre (or similar), mixed fill – either channel infill of 'swamp' or back fill from previous archaeological or geotechnical digs
0.6							
0.8	02						
1.0							
1.2							
1.4							
1.6							
1.8			Sandstone bedrock from 1.7m	R	M	C	Sandstone bedrock
2.0							End of Hole Depth – 2.0m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	TP6

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	31/01/18	31/01/18
EXCAVATION METHOD	**WELL/LOG DIAMETER**	**SAMPLING METHOD**	
Excavator	N/A	Grab sample	
SITE COORDINATES	**EXCAVATION DIMENSIONS (LENGTH & WIDTH)**		
E: 530601 N: 5316983	1.5m x 0.5m		
SURFACE RL	**DATUM**	**COVA PERSONNEL**	**SHEET NO.**
N/A	N/A	Fiona Keserue-Ponte	6 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1	01	0	Gravelly sand	F	D	C	Coarse cobbles & sand fill
0.2							
0.3							
0.4							
0.5	02	0	Gravelly loam	R	M	C	Dark brown, loamy, sandy gravel – residual soil profile
0.6			Weathered sandstone	R	M	C	Residual, weathered sandstone, yellow / orange / brown, minor groundwater seepage in the corner of the test pit
0.7							
0.8							
0.9							
1.0							End of Hole Depth – 0.9m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	TP7

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	31/01/18	31/01/18
EXCAVATION METHOD	WELL/LOG DIAMETER	SAMPLING METHOD	
Excavator	N/A	Grab sample	
SITE COORDINATES	EXCAVATION DIMENSIONS (LENGTH & WIDTH)		
E: 530611 N: 5316970	1.5m x 0.5m		
SURFACE RL	DATUM	COVA PERSONNEL	SHEET NO.
N/A	N/A	Fiona Keserue-Ponte	7 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1	01	0	Cobbles, gravel & sand	F	D	C	Brown cobbles, gravel & sand fill / hardstand layer
0.2							
0.3	02	0	Loamy, sandy gravel	R	M	C	Dark brown, loamy soil – residual, moist
0.4			Grey, weathered sandstone	R	D	C	
0.5			Yellow / brown, weathered sandstone	R	D	C	
0.6							
0.7							
0.8							
0.9							
1.0							End of Hole Depth – 1.1m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	TP8

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	31/01/18	31/01/18
EXCAVATION METHOD	WELL/LOG DIAMETER	SAMPLING METHOD	
Excavator	N/A	Grab sample	
SITE COORDINATES	EXCAVATION DIMENSIONS (LENGTH & WIDTH)		
E: 530621 N: 5316955	1.5m x 0.5m		
SURFACE RL	DATUM	COVA PERSONNEL	SHEET NO.
N/A	N/A	Fiona Keserue-Ponte	8 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1	01	0	Gravelly sand	F	D	C	Red gravel hardstand, fill
0.2	02	0	Loamy sand	R	M	C	Dark brown, loamy sand – residual soil
0.3							
0.4			Weathered sandstone	R	D	C	Yellow / orange, weathered sandstone
0.5							
0.6							
0.7							
0.8							
0.9							
1.0							End of Hole Depth – 0.6m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	TP9

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	31/01/18	31/01/18
EXCAVATION METHOD	WELL/LOG DIAMETER	SAMPLING METHOD	
Excavator	N/A	Grab sample	
SITE COORDINATES	EXCAVATION DIMENSIONS (LENGTH & WIDTH)		
E: 530607 N: 5316955	1.5m x 0.5m		
SURFACE RL	DATUM	COVA PERSONNEL	SHEET NO.
N/A	N/A	Fiona Keserue-Ponte	9 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1	01	0	Gravel, cobbles, sand	F	D	C	Gravelly, cobbles & sand, hardstand fill – red / pale brown
0.2							
0.3	02	0	Loamy sand	R	M	C	Dark brown sand
0.4			Sandstone				Yellow / orange sandstone
0.5							
0.6							
0.7							
0.8							
0.9							
1.0							End of Hole Depth – 0.9m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	TP10

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	31/01/18	31/01/18
EXCAVATION METHOD	**WELL/LOG DIAMETER**	**SAMPLING METHOD**	
Excavator	N/A	Grab sample	
SITE COORDINATES	**EXCAVATION DIMENSIONS (LENGTH & WIDTH)**		
E: 530593 N: 5316945	1.5m x 0.5m		
SURFACE RL	**DATUM**	**COVA PERSONNEL**	**SHEET NO.**
N/A	N/A	Fiona Keserue-Ponte	10 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1			Gravel, cobbles & sand	F	D	C	Hardstand brown, gravelly fill
0.2	01						
0.3							
0.4							
0.5	02		Loamy sand	R	M	C	Dark brown, loamy soil
0.6			Sandstone	R	D	C	Orange / yellow, weathered sandstone
0.7							
0.8							
0.9							
1.0							End of Hole Depth – 1.0m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	TP11

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	31/01/18	31/01/18
EXCAVATION METHOD	**WELL/LOG DIAMETER**	**SAMPLING METHOD**	
Excavator	N/A	Grab sample	
SITE COORDINATES	**EXCAVATION DIMENSIONS (LENGTH & WIDTH)**		
E: 530577 N: 5316931	1.5m x 0.5m		
SURFACE RL	**DATUM**	**COVA PERSONNEL**	**SHEET NO.**
N/A	N/A	Fiona Keserue-Ponte	11 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1			Sandy gravel	F	D	C	Red gravel hardstand
			Gravel & sand	F	D	C	Grey, coarse blue metal & sand
0.2	01	0					
0.3			Loamy sand	R	M	C	Loamy, sandy soil
0.4			Weathered sandstone	R	M	C	Light grey / brown, weathered sandstone
0.5	02	0					
0.6			Sandstone	R	M	C	Yellow, weathered sandstone
0.7							
0.8							
0.9							
1.0							End of Hole Depth – 1.1m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	TP12

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	31/01/18	31/01/18
EXCAVATION METHOD	WELL/LOG DIAMETER	SAMPLING METHOD	
Excavator	N/A	Grab sample	
SITE COORDINATES	EXCAVATION DIMENSIONS (LENGTH & WIDTH)		
E: 530567 N: 5316952	1.5m x 0.5m		
SURFACE RL	DATUM	COVA PERSONNEL	SHEET NO.
N/A	N/A	Fiona Keserue-Ponte	12 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.2	01	0	Gravel & sand	F	D	C	Red gravel & sand hardstand
0.4	0.2	0.5	Gravel, sand & loam	F	D	C	Grey gravel & sand, pieces of red brick, hardstand mixed with soil
0.6			Sand	F/R?	M	C	Weathered sandstone? Reworked?, green stained, slight odour, fine sand
0.8	03	0					
1.0							
1.2							
1.4							
1.6			Sandstone				Yellow sandstone
1.8							
2.0							End of Hole Depth – 1.7m Target Depth Reached

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	TP13

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	31/01/18	31/01/18
EXCAVATION METHOD	WELL/LOG DIAMETER	SAMPLING METHOD	
Excavator	N/A	Grab sample	
SITE COORDINATES	EXCAVATION DIMENSIONS (LENGTH & WIDTH)		
E: 530628 N: 5316910	1.5m x 0.5m		
SURFACE RL	DATUM	COVA PERSONNEL	SHEET NO.
N/A	N/A	Fiona Keserue-Ponte	13 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1			Loamy sand & fill	F	M	C	Loamy, sandy topsoil
0.2	01	0					
0.3							
0.4							
0.5							0.5m – wire & some minor red brick fragments noted
0.6			Sand	F	M	C	Reworked sandstone with red brick
0.7	02	0	Sandstone	R	M	C	Sandstone
0.8							
0.9							
1.0							End of Hole Depth – 1.2m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	TP14

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	31/01/18	31/01/18
EXCAVATION METHOD	WELL/LOG DIAMETER	SAMPLING METHOD	
Excavator	N/A	Grab sample	
SITE COORDINATES	EXCAVATION DIMENSIONS (LENGTH & WIDTH)		
E: 530616 N: 5316940	1.5m x 0.5m		
SURFACE RL	DATUM	COVA PERSONNEL	SHEET NO.
N/A	N/A	Fiona Keserue-Ponte	14 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1	01	0	Sandy loam with rootlets	R	D	C	Grass cover Dark brown, sandy loam
0.2							
0.3			Weathered sandstone	R	D	C	Beige / orange, weathered sandstone
0.4			Sandstone bedrock	R	M	C	Beige / orange sandstone
0.5							
0.6							
0.7							
0.8							
0.9							
1.0							End of Hole Depth – 0.45m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	TP15

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	31/01/18	31/01/18
EXCAVATION METHOD	WELL/LOG DIAMETER	SAMPLING METHOD	
Excavator	N/A	Grab sample	
SITE COORDINATES	EXCAVATION DIMENSIONS (LENGTH & WIDTH)		
E: 530624 N: 5316929	1.5m x 0.5m		
SURFACE RL	DATUM	COVA PERSONNEL	SHEET NO.
N/A	N/A	Fiona Keserue-Ponte	15 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1	01	0	Gravelly, sandy loam	F	D	C	Dark brown, gravelly, sandy loam with rootlets, no odour, minor mixed wastes (terracotta tile & roofing)
0.2							
0.3	02	0	Sand	R	D	C	Beige, weathered sandstone / sand, no odour
0.4			Sandstone	R	M	C	Yellow / orange, weathered sandstone, moist, no odour
0.5							
0.6							
0.7							
0.8							
0.9							
1.0							End of Hole Depth – 0.8m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	TP16

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	31/01/18	31/01/18
EXCAVATION METHOD	WELL/LOG DIAMETER	SAMPLING METHOD	
Excavator	N/A	Grab sample	
SITE COORDINATES	EXCAVATION DIMENSIONS (LENGTH & WIDTH)		
E: 530624 N: 5316916	1.5m x 0.5m		
SURFACE RL	DATUM	COVA PERSONNEL	SHEET NO.
N/A	N/A	Fiona Keserue-Ponte	16 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1			Sandy gravel	F	D	C	Red gravel
0.2	01	0	Loamy, gravelly sand	F/R	M	C	Grey gravel & loamy soil & old disconnected concrete pipe
0.3							
0.4							
0.5	02	0		R	M/W	C	Weathered sandstone, grey / beige, water seepage at 0.6m
0.6			Sandstone	R	M	C	Orange sandstone
0.7							
0.8							
0.9							
1.0							End of Hole Depth – 1.1m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	T15-BH1

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	01/02/18	01/02/18
EXCAVATION METHOD	WELL/LOG DIAMETER	SAMPLING METHOD	
Hollow Flight Auger	0.3m	Grab sample	
SITE COORDINATES	EXCAVATION DIMENSIONS (LENGTH & WIDTH)		
E: 530639 N: 5316902	1.5m x 0.5m		
SURFACE RL	DATUM	COVA PERSONNEL	SHEET NO.
N/A	N/A	Fiona Keserue-Ponte	17 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1			Loamy soil	F	M	C	Topsoil, moist
0.2							
0.3							
0.4							
0.5	T15-06	0	Sandy clay	F	M	C	Mixed, weathered sandstone & clay & topsoil
0.6							
0.7			Weathered sandstone from 0.7m, hard sandstone at 1.7m	R	M	C	
0.8							
0.9							
1.0							End of Hole Depth – 1.7m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	T15-BH2

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	01/02/18	01/02/18
EXCAVATION METHOD	WELL/LOG DIAMETER	SAMPLING METHOD	
Hollow Flight Auger	0.3m	Grab sample	
SITE COORDINATES	EXCAVATION DIMENSIONS (LENGTH & WIDTH)		
E: 530635 N: 5316907	1.5m x 0.5m		
SURFACE RL	DATUM	COVA PERSONNEL	SHEET NO.
N/A	N/A	Fiona Keserue-Ponte	18 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1			Loamy sand	F	M/W	C	Loamy sand
0.2							
0.3							
0.4							
0.5	T15-07	0	Sand	F	M/W	C	Reworked, weathered sandstone
0.6			Weathered sandstone from 0.6m, hard sandstone at 1.1m	R	M	C	
0.7							
0.8							
0.9							
1.0							End of Hole Depth – 1.1m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	T15-BH3

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	01/02/18	01/02/18
EXCAVATION METHOD	WELL/LOG DIAMETER	SAMPLING METHOD	
Hollow Flight Auger	0.3m	Grab sample	
SITE COORDINATES	EXCAVATION DIMENSIONS (LENGTH & WIDTH)		
E: 530629 N: 5316911	1.5m x 0.5m		
SURFACE RL	DATUM	COVA PERSONNEL	SHEET NO.
N/A	N/A	Fiona Keserue-Ponte	19 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1	T15-08	0	Sandy loam	F	M/W	C	Black, sandy loam
0.2							
0.3			Loamy sand	R/F	M/W	C	Mixed, reworked weathered sandstone & loam, red / brown
0.4							
0.5							
0.6			Sand at 0.6m, hard sandstone at 1.5m	R	M	C	Weathered sandstone, brown / red
0.7							
0.8							
0.9							
1.0							End of Hole Depth – 1.5m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	TP17

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	1/11/18	1/11/18
EXCAVATION METHOD	WELL/LOG DIAMETER	SAMPLING METHOD	
Excavator	N/A	Grab sample	
SITE COORDINATES	EXCAVATION DIMENSIONS (LENGTH & WIDTH)		
E: 530594 N: 5316913	0.25m x 1.1m		
SURFACE RL	DATUM	COVA PERSONNEL	SHEET NO.
N/A	N/A	Fiona Keserue-Ponte	20 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1	01	0	Gravel, soot, blacksmith refuse, sand	F	D	C	Crumbly fill with mixed gravels, sand, ash, soot, horse shoes & other metal scraps (blacksmith), no odour
0.2							
0.3			Loamy sand	R		F-C	Natural, no odour
0.4			Silty sand	R	D-M	F-C	Yellow-beige, silty sand, natural, slightly moist, no odour
0.5	02	0					
0.6							
0.7			Weathered siltstone	R	D-M	F	Beige / orange, slightly moist, dense, weathered siltstone, no odour
0.8							
0.9							
1.0							End of Hole Depth – 1.1m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	TP18

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	1/11/18	1/11/18
EXCAVATION METHOD	**WELL/LOG DIAMETER**	**SAMPLING METHOD**	
Excavator	N/A	Grab sample	
SITE COORDINATES	**EXCAVATION DIMENSIONS (LENGTH & WIDTH)**		
E: 530573 N: 5317005	0.25m x 0.8m		
SURFACE RL	**DATUM**	**COVA PERSONNEL**	**SHEET NO.**
N/A	N/A	Fiona Keserue-Ponte	21 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1	01	0	Gravel fill	F	D	C	Beige, sandy, gravelly fill, no odour
0.2							
0.3			Topsoil, sandy loam	R	M	F-C	Dark brown / black, loamy topsoil, no odour
0.4	02	0	Weathered sandstone & sand	R	D-M	F-C	Yellow / orange, sandy bedrock, no odour
0.5			Weathered silty mudstone	R	D-M	F	Yellow / orange silty bedrock, dense, clayey mudstone
0.6							
0.7							
0.8							
0.9							
1.0							End of Hole Depth – 0.8m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

PROJECT NAME	18 Church Street - DSI	PROJECT NO.	4193.005
LOCATION	Southern Midlands Council Works Depot	EXCAVATION/CUTTING NO.	TP19

EXCAVATION COMPANY	OPERATOR	COMMENCED DATE	COMPLETED DATE
Southern Midlands Council	Brian Chatters	1/11/18	1/11/18
EXCAVATION METHOD	WELL/LOG DIAMETER	SAMPLING METHOD	
Excavator	N/A	Grab sample	
SITE COORDINATES	EXCAVATION DIMENSIONS (LENGTH & WIDTH)		
E: 530596 N: 5316992	0.25m x 0.8m		
SURFACE RL	DATUM	COVA PERSONNEL	SHEET NO.
N/A	N/A	Fiona Keserue-Ponte	22 of 22

DEPTH (M)	SAMPLES	PID (PPM)	PROFILE DESCRIPTION	GRAPHIC LOG	MOISTURE CONTENT	SOIL TEXTURE	MATERIAL & NOTES soil name, soil texture, particle characteristics, colour, additional
0.1	01	0	Gravel fill	F	D	C	Coarse gravel fill, light brown, no odour
0.2							
0.3	02	0	Sandy loam	R	D-M	F-C	Thin black/brown layer of natural, loamy topsoil, no odour
0.4			Sandy silt	R	D-M	F-C	Fine, sandy silt, weathered bedrock, yellow / orange
0.5							
0.6			Weathered siltstone	R	D-M	F	Fine, dense, weathered siltstone, yellow – orange / beige, mottled, no odour
0.7							
0.8							
0.9							
1.0							End of Hole Depth – 0.8m Target Depth Reached – Yes

SYMBOL EXPLANATIONS

Moisture Content: D-dry, looks & feels dry; M-moist, no free water; W-wet, free water
Soil Texture (predominant): C-coarse; F-fine
Residual / Fill: R-residual, natural profile placed by natural processes; F-fill, placed by human action

Appendix K – WCCPL Qualitative Groundwater Risk Assessment (9 May 2018)

William C Cromer Pty Ltd
ABN 48 009 531 613
Environmental, engineering and groundwater geologist

9 May 2018

Ms. F. Keserue-Ponte
Principal Environmental Scientist
COVA
40 Molle Street
HOBART 7000

only via: Fiona.Keserue-Ponte@covathinking.com

Dear Fiona

FORMER COUNCIL WORKS DEPOT, OATLANDS
QUALITATIVE GROUNDWATER RISK ASSESSMENT

Background

COVA has conducted site contamination investigations at the former Southern Midlands Council Works Depot (Attachments 1 and 2), and has commissioned William C Cromer Pty Ltd (WCCPL) to do a qualitative groundwater risk assessment.

The site will be redeveloped as the Oatlands Aquatic Centre (Attachment 3), with a 25m long swimming pool up to about 1.8m deep (extending down from current ground level at 402.80mAHD). With concrete base, it is estimated the excavation for the pool will be up to about 2 – 2.1m below present ground level.

In an email to WCCPL dated 18 March 2018, COVA noted that "the main contamination of concern relates to:

a. An underground diesel fuel tank, which council removed earlier this year and we sampled……..

b. A former above ground diesel fuel tank, which was removed by council approximately 15 years ago (and was replaced by the UPSS mentioned at a)……."

There was another former UPSS on site, but sampling to depths of 2.5m around it show no contamination issues, and it is not considered further in this assessment.

Brief

COVA requested WCCPL conduct a desktop review to determine:

i. whether the identified site contamination from diesel is likely to have impacted groundwater beneath the site,

ii. if it is likely to have impacted groundwater, then what are the (qualitative) current risks to human health and ecology…..,

iii. are these current risks at a level that:
   a. are acceptable and do not require further investigation;
   b. are not acceptable and require additional investigation;
   c. cannot be ascertained and require additional investigation.

iv. If b. or c. (in iii above) apply, then the desktop report also needs to include suggested follow up investigations and explanation of what information these would provide.

Methodology

In addition to reviewing the information provided, the systematic approach to this risk assessment was to:

- review the published geology of the Oatlands district
- review details of recorded water bores in the district
- compile conceptual hydrogeological cross sections of the district and Works Depot site depicting groundwater systems, depths to groundwater and groundwater flow directions, and
- based on the above, qualitatively assess the chances of groundwater contamination at the Works Depot, and if necessary recommend follow-up groundwater investigations

RESULTS

Geology and soils

The published geology (Attachment 1) shows the Works Depot, Oatlands township and surrounding areas are underlain by Triassic-age sedimentary rocks – principally sandstone. Dolerite has intruded the Triassic sandstones on higher ground (including Burburys Hill) to the north, and was intersected under sandstone in bore 41639 (Attachment 4) south of Lake Dulverton. All other bores shown in Attachment 4 passed through only Triassic sedimentary rocks, to depths up to 70m.

At the Works Depot site, COVA-supplied photos of the excavation for the diesel AST (Figure 1) and diesel UPSS (Figure 2) showed sparsely jointed, probably sub-horizontal yellowish-orange sandstone of presumed Triassic age, beneath less than a metre or so of soil. The soil appears to be duplex, with a dark, coarse-grained imported gravel over an orange probably sandy subsoil with a clayey component. The latter is locally stained light grey blue.

Figure 1. **Excavations in February 2018 at the Works Depot to remove identified diesel contamination at the site of the former above-ground diesel storage tank (AST).**
Source: COVA

The COVA site history and sampling report[1] included a summary of geotechnical investigations by Tasman Geotechnics which found soils of silty/clayey sand to sand with clay/silt over massive sandstone at depths of 1.05 – 1.2m, with no groundwater to 1.2m.

Figure 2. **Excavations in February 2018 at the Works Depot to remove the former underground diesel storage tank (UPSS).**
Source: COVA

Water bore records

Attachment 4 shows that of 18 bores recorded near Oatlands:

- all but one was drilled wholly in Triassic sedimentary rocks
- drill depths ranged from 22m – 77m (average 40m)
- all but one bore recorded groundwater, with reported yields in the range 0.04L/s – 10L/s (average 1.8L/s)
- groundwater salinity was reported (presumably at the time of drilling) from 10 bores; salinity ranged from 580mg/L – 2,107mg/L of total dissolved solids (TDS). Two values were less than 750mg/L, and 6 were in the 750 – 1,000mg/L range. This latter group are in the high end of the range typically regarded as reasonably potable[2].
- 12 bores were recorded as functioning at the time of drilling, 3 were capped, and the status of 2 others was unknown. The current status of the bores is unknown.

[1] COVA (2017). Southern Midlands Council Municipal Works Depot, Oatlands. Site History Report and Sampling Analysis and Quality Plan. Report for Bzowy Architecture, 4 August 2017.

[2] Oatlands is supplied with reticulated mains water from Taswater.

- yield tends to increase with depth
- depth to the water table was recorded in four bores. Three of them around the shores of Lake Dulverton showed water tables in the 2m – 3.2m range; these were drilled between 1981 and 1995 so the data are dated; bore 40787 drilled in 2006 near the southern junction of the Midlands Highway and High Street showed a depth to water of 13.5m.
- there are no recorded water bores between the Works Depot and Dulverton Rivulet

Discussion

Groundwater principles

Attachment 5 describes the fundamentals of groundwater occurrence and movement at local, intermediate and regional scales in an unconfined, gravity-driven groundwater system. This diagram forms the basis for understanding groundwater conditions at and near the Works Depot.

In my view, the groundwater at and near Oatlands is unconfined, with water in fractures in (principally) sandstone bedrock; the intervening rock between fractures is dry.

At intermediate and regional scales, there is only one aquifer; however, at a local scale, low-permeability soil profiles create confined conditions. This may occur at and near the Works Depot (Figure 3).

Figure 3. **Excavations in February 2018 at the site of the former above-ground diesel storage tank (AST) exposed stained, low-permeability clayey subsoil which would have inhibited vertical infiltration of contaminants to groundwater. The diesel penetrated to sandstone bedrock.**
Source: COVA

Hydrogeological cross sections
The main observations from the natural-scale cross sections in Attachment 6 are:

- groundwater at intermediate-scale is moving from Lake Dulverton under Oatlands (including the Works Depot) towards Dulverton Rivulet. The rivulet is the focus of most groundwater flow in the district (at regional scale, deeper groundwater flows under the rivulet to the Jordan River)

- the depth to water under the township and the Works Depot is uncertain, but is likely to be more than about 2-3m (Figure 2 shows dry bedrock to at least about 2.5m).

- the vertical extent of water table fluctuations resulting from annual, seasonal and shorter-term rainfall are unknown

- the gradient of the water table between the lake and the rivulet is of the order of 1:500, which is low; bulk bedrock permeability (ie rock mass and fractures) is unknown[3], so flow volumes and rates of flow are also unknown

Scale and degree of contamination at the Works Depot
AST site
COVA has reported that diesel spillage at the above-ground AST reportedly occurred in the 1990s, but the volume of spill is not known. The AST was removed about 15 years ago. Analysed samples in the 1.2m – 1.5m depth range returned sum (>C10-C40) in the range <50 – 3900mg/kg.

Inspection of provided photos show subsoil staining, with the staining apparently extending into subhorizontal, clay-filled fractures in the upper parts of the exposed bedrock (Figure 4). It is reasonable to assume similar staining would extend some distance down more steeply-inclined fractures, but no such fractures are apparent in the photos. If present, some of these would be clay-lined, and in my experience clay linings and fillings could extend several metres vertically. Clay linings and fillings would inhibit contaminant infiltration.

UPSS site
The in-ground diesel tank was reportedly emptied in December 2017 and decommissioned in February 2018; in the intervening period it was apparently vandalised (water-filled) and during removal was found to be leaking from several holes. During decommissioning, backfill sands and pit walls were noted as being “impacted by diesel” but five samples from the wall and base at depths of 2.5m returned no detectable petroleum hydrocarbons. From this, it is inferred no deeper contamination of bedrock has occurred.

Conclusions

Salient inferences
Based on general hydrogeological principles, published geology, water bore records, and COVA site investigations, it is reasonable to conclude:

- groundwater at unknown (but in early 2018 more than 2.5m) depth is likely to be present in fractures in Triassic sandstone bedrock under the Works Depot site, and in the fractures is moving at an (unknown) rate in a general northerly direction to discharge at Dulverton Rivulet

- current data suggest excavations for the proposed swimming pool to depths of about 2m will likely be above the water table, but this depends on the vertical extent of water table fluctuations

[3] Latinovic et al (2003). Tasmanian Groundwater Flow Systems for Dryland Salinity Planning. Tasmanian Geological Survey Record 2003/02 list permeability in the 5 – 10m/day range for unconfined, fractured Permian and Triassic aquifers in Tasmania, but these are estimates.

- the groundwater quality is marginally potable, but Oatlands is serviced by reticulated mains water so human groundwater consumption is unlikely

- the volume of mid-1990s spillage from the former AST (removed about 15 years ago) is unknown; given this uncertainty, it is possible that diesel contaminants have migrated to groundwater

- it is unlikely that diesel contaminants from the former UPSS (removed in February 2018) have migrated to groundwater

Given these uncertainties, it is not possible at this stage to ascertain whether or not groundwater at the site has been affected by diesel contamination. Contamination, if present in groundwater, may be acceptable or unacceptable for various potential receptors, including pool construction workers, pool users, trenching service providers, future groundwater users, etc.

It is difficult to escape the conclusion that these uncertainties need to be followed up.

Figure 3. **Excavations in February 2018 at the site of the former above-ground diesel storage tank (AST). Staining has extended to subhorizontal, clay-filled fractures in bedrock (centre of photo) but the bedrock appears relatively sparsely jointed. There are no apparent steeply-dipping fractures, but if they are present, vertical migration of contaminants is possible but may be inhibited by clay linings.**
Source: COVA

Follow-up investigations

Stage 1

A single groundwater bore should be sited about 10 – 20m downgradient from the AST site. Nominal depth is uncertain, but the bore should be drilled deep enough to intersect water bearing fractures in the sandstone bedrock. Water level in the bore will then rise to the water table. The bore should be logged and cased, and the groundwater sampled for diesel contamination:

- if no contamination is present, the bore may be capped, and/or backfilled and abandoned. The conclusion arising is that groundwater has not been affected by diesel contamination and no further groundwater investigations are warranted.

- if contamination is present, the bore should remain intact while a risk assessment determines contamination acceptability on human health and ecological grounds, If contaminant levels are judged to be acceptable, the bore may be capped, and/or backfilled and abandoned. If found to be unacceptable, Stage 2 should be considered.

Stage 2

An upgradient bore, and a downgradient bore (offset so the three bores form a triangle) should be drilled, cased and sampled in a manner similar to the Stage 1 bore. Depth to the water table, the groundwater flow direction beneath the site, and the lateral extent of contamination, can be established. Analytical results will assist in human health and ecological risk assessments. Depending on these, all bores may be capped and/or abandoned, or further investigations may be required. For example, investigations might include (but not necessarily be limited to):

- installing a digital water level recorder in one of the bores to monitor water table fluctuations

- aquifer testing to establish permeability, storativity and groundwater flow volumes and rates

Yours sincerely

W. C. Cromer
Principal
This report is and must remain accompanied by the following Attachments

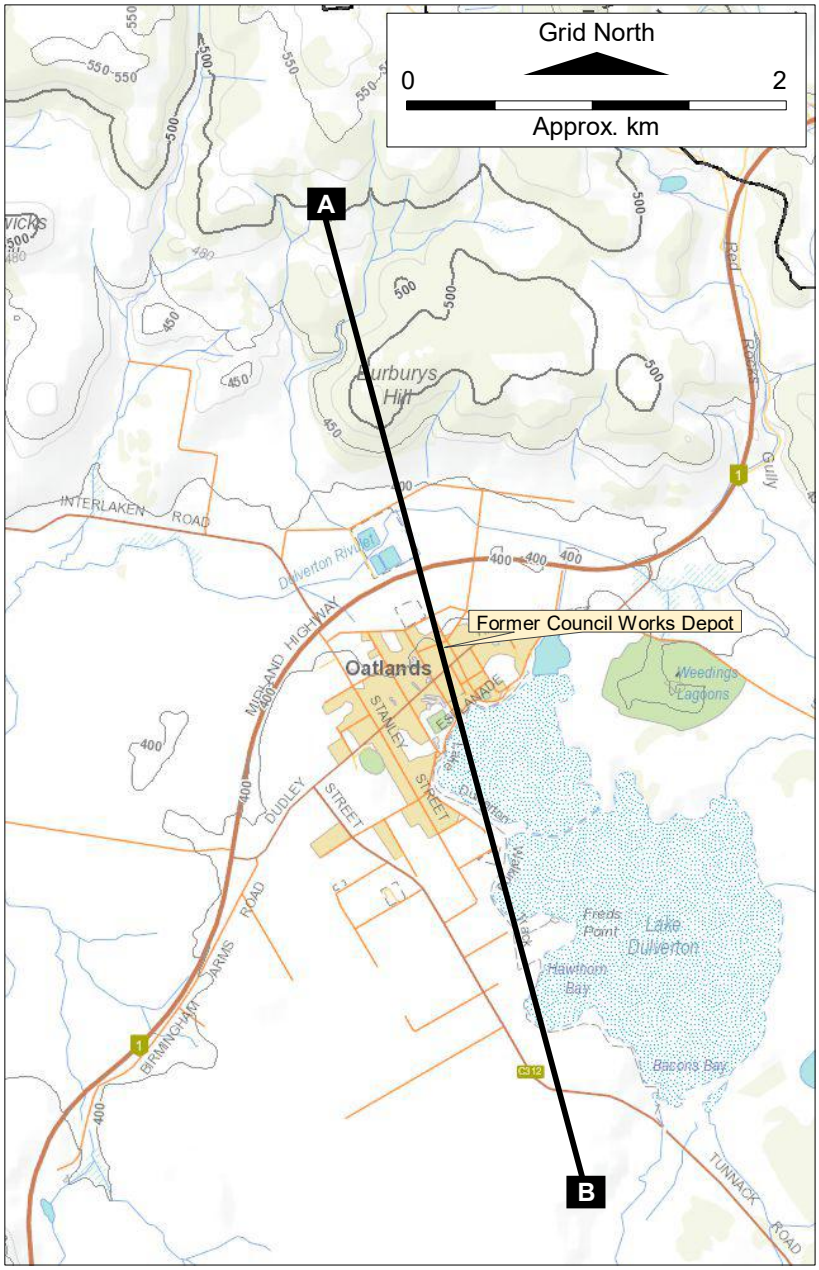
Attachment 1. Location, published geology and section line A – B (2 pages)
Attachment 2. Aerial imagery (1 page)
Attachment 3. Existing site and proposed pool development
Attachment 4. Recorded water bores in the Oatlands district (2 pages)
Attachment 5. Fundamentals of groundwater systems (1 page)
Attachment 6. Conceptual hydrogeological cross sections (1 page)

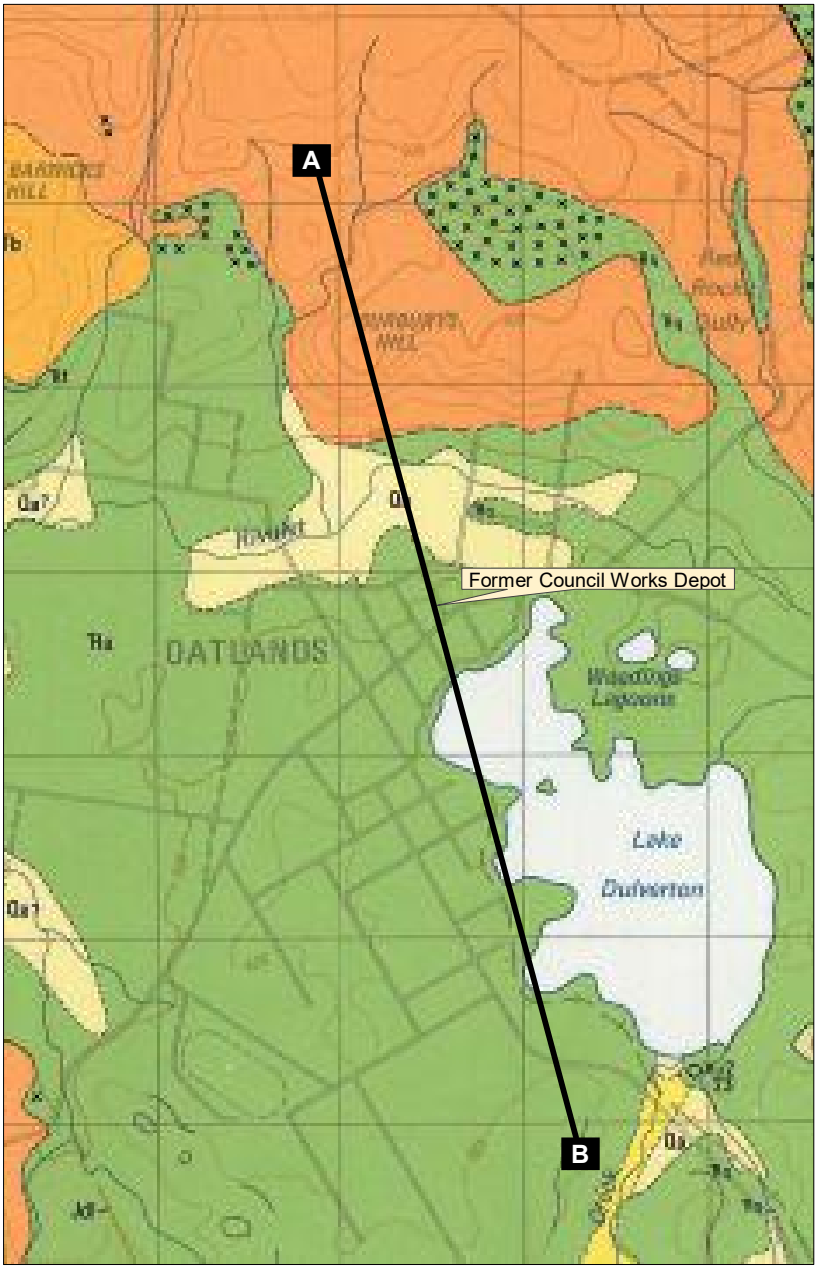
Attachment 1

(2 pages)

Location, published geology and section line A – B

Source: www.thelist.tas.gov.au, Mineral Resources Tasmania





Source
Forsyth, S. M. (. (1976). Geological atlas 1:50,000 scale. *Oatlands* Department of Mines Tasmania.
Key to rock colours
Green = Triassic-age sedimentary rocks; Orange = Jurassic dolerite; Yellow = Quaternary alluvium
For the Triassic rocks, symbol Tru = undifferentiated sedimentary rocks (principally sandstone); Trq = dominantly medium to coarse grained quartz sandstone with minor mudstone.

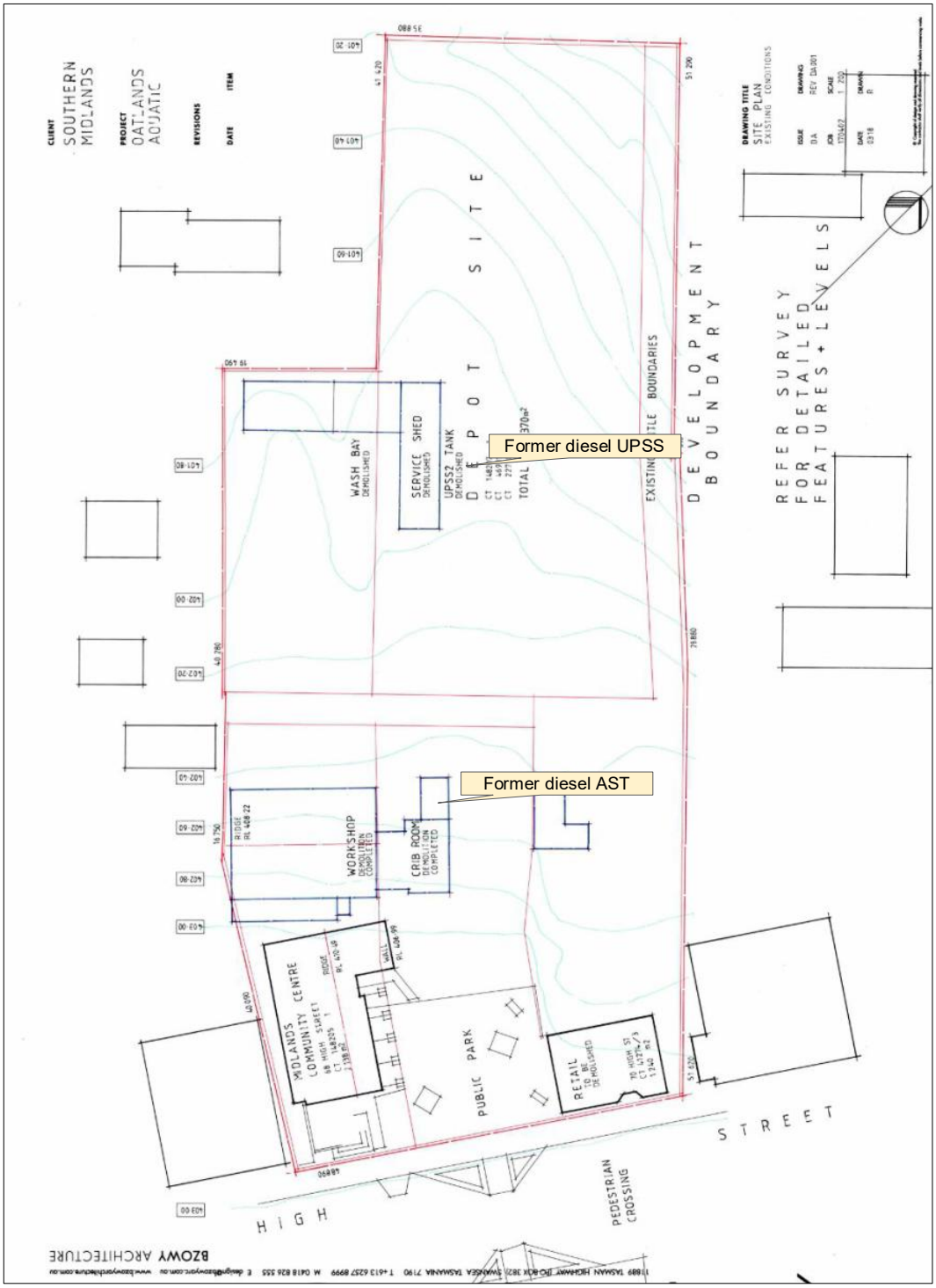
Attachment 2

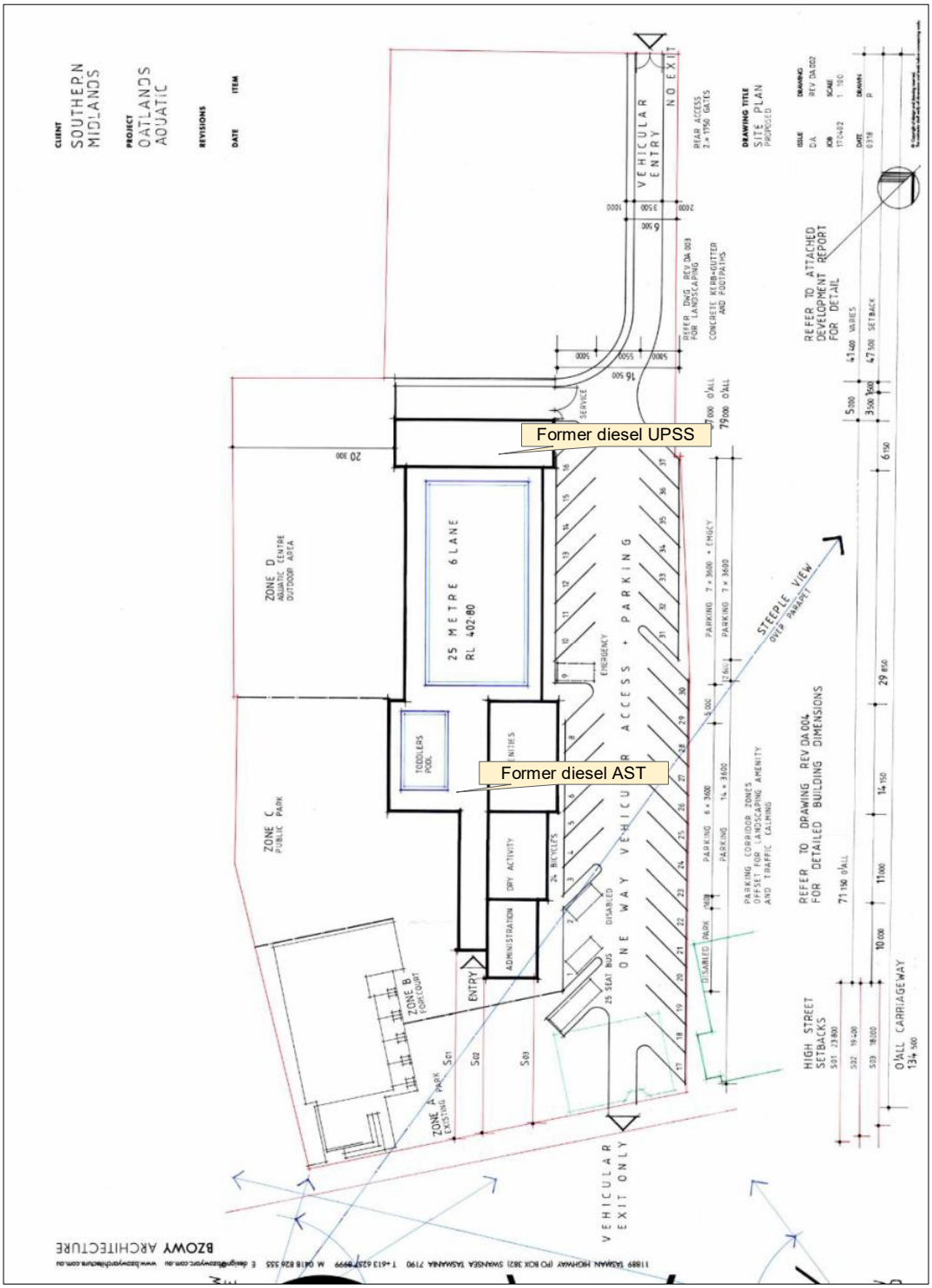
(1 page)

Aerial imagery

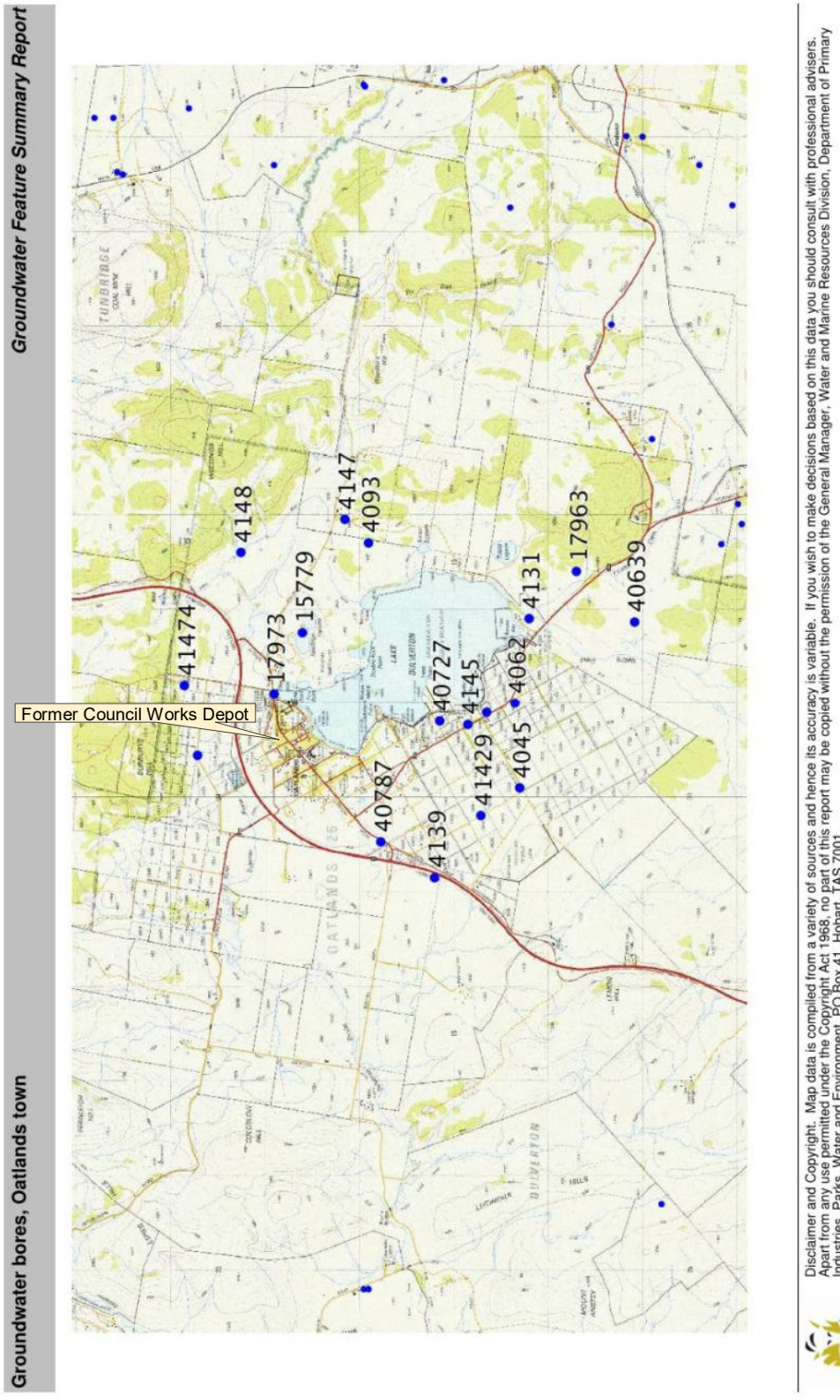
Sources: www.thelist.tas.gov;
Approximate locations of removed UPSS and AST from information provided by COVA
Contours highlighted

Attachment 3
(2 pages)
Existing site and proposed pool development
Source: Provided by COVA




Former diesel UPSS
Former diesel AST
CLIENT
SOUTHERN MIDLANDS
PROJECT
OATLANDS AQUATIC
REVISIONS
DATE
ITEM
DRAWING TITLE
SITE PLAN PROPOSED
VEHICULAR ENTRY NO EXIT
REAR ACCESS 2 x 1750 GATES
REFER DWG REV DA 003 FOR LANDSCAPING
CONCRETE KERB+GUTTER AND FOOTPATHS
REFER TO ATTACHED DEVELOPMENT REPORT FOR DETAIL
ZONE D AQUATIC CENTRE OUTDOOR AREA
25 METRE 6 LANE RL 402.80
TODDLERS POOL
ENTRIES
ACCESS + PARKING
ONE WAY VEHICULAR
EMERGENCY
PARKING 7 x 3600 + EMGCY
PARKING 7 x 3600
PARKING 14 x 3600
PARKING 6 x 3600
STEEPLE VIEW OVER PARAPET
ZONE C PUBLIC PARK
ZONE B FORECOURT
ZONE A PARK EXISTING
ENTRY
ADMINISTRATION
DRY ACTIVITY
24 BICYCLES
DISABLED PARK
25 SEAT BUS
PARKING CORRIDOR ZONES DEFINED FOR LANDSCAPING AMENITY AND TRAFFIC CALMING
REFER TO DRAWING REV DA 004 FOR DETAILED BUILDING DIMENSIONS
HIGH STREET SETBACKS
S01 23 800
S02 19 400
S03 18 000
VEHICULAR EXIT ONLY
O'ALL CARRIAGEWAY 13+ 500
B2OWY ARCHITECTURE

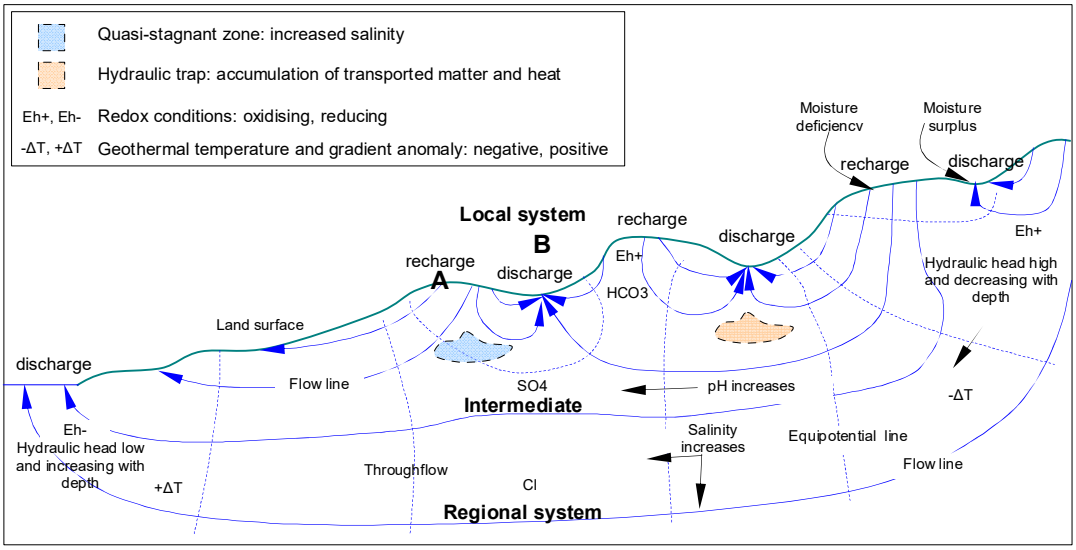
Attachment 4
(2 pages)
Recorded water bores in the Oatlands district
Source: Groundwater Information Access Portal

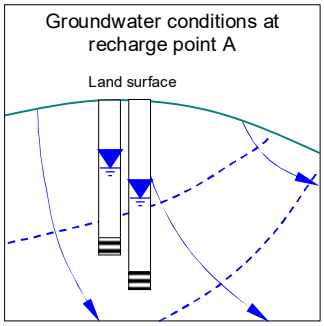


Groundwater bores, Oatlands town — ***Groundwater Feature Summary Report***

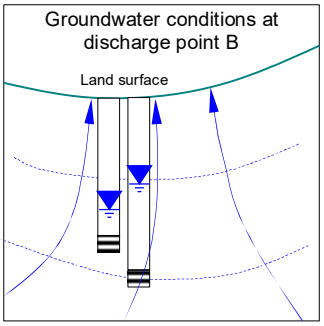
Feature id	Feature type	Locality name	Easting	Northing	Datum	Coordinate accuracy (m)	Drilled date	Drilling company	Depth	Initial yield	SWL list	Last SWL date	Final TDS	Main aquifer geology	Last operating status	Last operating status date
4015	Bore	Oatlands	531014	5314833	GDA94	200	23/02/1981	RIC	30.50	0.04			760	Triassic	functioning	23/02/1981
4045	Bore	Oatlands	530214	5314483	GDA94	200	21/11/1962	Mines Department (=Tasmania Department of Mines)	30.50	0.38			580	Triassic	Unknown	21/11/1962
4062	Bore	Oatlands	531114	5314533	GDA94	200	23/02/1981	RIC	46.00	0.57	2.8	23/02/1981		Triassic	functioning	23/02/1981
4093	Bore	Oatlands	532814	5316083	GDA94	200	25/01/1951	Mines Department (=Tasmania Department of Mines)	33.50	0.32				Triassic	functioning	25/01/1951
4131	Bore	Parattah	532014	5314383	GDA94	200	31/08/1951	Mines Department (=Tasmania Department of Mines)	22.90	0.44			1320	Triassic	Unknown	31/08/1951
4139	Bore	Oatlands	529264	5315383	GDA94	200	15/05/1953	Mines Department (=Tasmania Department of Mines)	27.40	0.38			970	Triassic	functioning	15/05/1953
4145	Bore	Oatlands	530884	5315033	GDA94	200	22/02/1981	RIC	22.50	0.57	2.5	22/02/1981		Triassic	functioning	22/02/1981
4147	Bore	Oatlands	533064	5316333	GDA94	200	29/05/1952	Mines Department (=Tasmania Department of Mines)	38.10	0.30				Triassic	functioning	29/05/1952
4148	Bore	Oatlands	532714	5317433	GDA94	200	12/06/1952	Mines Department (=Tasmania Department of Mines)	30.50	0.32				Triassic	functioning	12/06/1952
15779	Bore	Oatlands	531864	5316783	GDA94	25	10/03/1995	Gerald Spaulding Drillers Pty Ltd	70.50	10.10	3.2	10/03/1995	670	Triassic	functioning	10/03/1995
17963	Bore	Oatlands	532514	5313883	GDA94	2000	20/05/1995	KMR Drilling Pty Ltd	30.00	0.38				Triassic	functioning	20/05/1995
17973	Bore	Oatlands	531214	5317083	GDA94	50	22/01/1996	KMR Drilling Pty Ltd	42.00	8.84			760	Triassic	functioning	22/01/1996
40639	Bore	Oatlands	531976	5313268	GDA94	1000	09/03/2009	Tasmanian Drilling Services Pty Ltd	77.00	3.79	0	09/03/2009	896	Jurassic Dolerite	capped	09/03/2009
40727	Bore	Oatlands	530921	5315330	GDA94	25	14/11/2006	KMR Drilling Pty Ltd	53.00	0.91			945	Triassic	capped	14/11/2006
40787	Bore	Oatlands	529642	5315955	GDA94	25	11/12/2006	Tasmanian Drilling Services Pty Ltd	40.00	0.44	13.5	11/12/2006	933	Triassic	capped	11/12/2006
41429	Bore	Oatlands	529920	5314895	GDA94	2	17/01/2005	KMR Drilling Pty Ltd	34.00		12.79	17/01/2005	2107	Triassic		
41474	Bore	Oatlands	531305	5318032	GDA94	2	25/06/2014	Gerald Spaulding Drillers Pty Ltd	48.00	2.27				Triassic	functioning	25/06/2014
41492	Bore	Oatlands	530557	5317893	GDA94	2	04/11/2014	Gerald Spaulding Drillers Pty Ltd	36.00	0.63				Triassic	functioning	04/11/2014

Attachment 5
(1 page)
Fundamentals of groundwater systems





In recharge areas (at left), the hydraulic heads are relatively high and decrease with depth, as shown by the water levels in two adjacent piezometers. In discharge areas (at right), the energy and flow conditions are reversed: heads are low and increase with depth.



Fundamentals of groundwater hydrology in a gravity-driven groundwater system. Adapted from Sophocleous (2004). Groundwater recharge, in *Groundwater*, [Eds. Luis Silveira, Stefan Wohnlich and Eduardo J. Usunoff] in *Encyclopaedia of Life Support Systems* (EOLSS), *Developed under the Auspices of the UNESCO, Eolss Publishers, Oxford, UK, [www.eolss.net)*

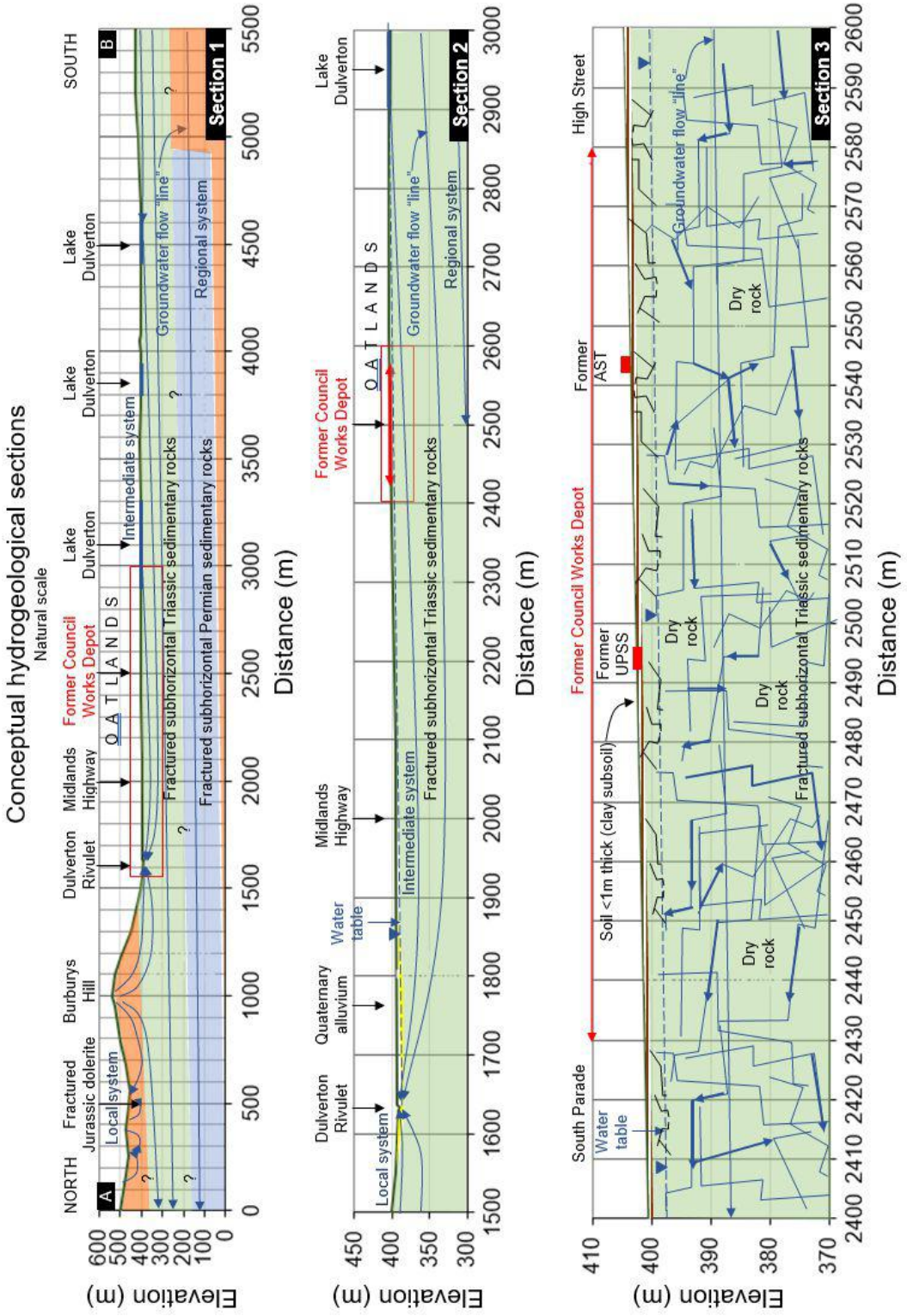
Attachment 6

(1 page)

Conceptual hydrogeological cross sections

(Natural scale)

See Attachment 1 for location of section lines.



Appendix L – WCCPL Drilling and Groundwater Sampling Report (31 July 2018)

COVA

FORMER COUNCIL WORKS DEPOT, OATLANDS

DRILLING AND GROUNDWATER SAMPLING

JULY 2018

Cover photo

Oblique drone image looking north-northwest over part of the former Council Works Depot at Oatlands. Groundwater exploration and sampling bore MW1 was installed on 5 July 2018 at the drill rig shown here, just left of centre.

Refer to this report as

Cromer, W. C. (2018b). *Drilling and groundwater sampling, former Council Works Depot, Oatlands.* Unpublished report for COVA by William C. Cromer Pty Ltd, 31 July 2018. 49 pages.

SUMMARY

At the former Council Works Depot in Oatlands, groundwater sampling bore MW1 was completed to a depth of 14m on 5 July 2018. It was located within 10m or so, and downgradient from, soil and fill contaminated with diesel hydrocarbons. The sources of contamination had been removed during site remediation by others.

Bedrock at the site is subhorizontal Triassic sandstone with subordinate interbedded siltstone. It is weathered and sparsely fractured; the water table on 12 July 2018 was about 6m below ground, and groundwater conditions are unconfined.

Groundwater (and drill returns) were sampled on 5 July, and laboratory-tested for petroleum hydrocarbons and metals. Groundwater only was sampled on 12 July 2018, and laboratory-tested for petroleum hydrocarbons, phenols, polynuclear aromatic hydrocarbons and metals. The earlier sampled groundwater (unfiltered, from air-lift on hole completion) returned 1,990µg/L of TRH (>C10-C40), no detectable BTEXN and 0.6mg/L lead. The hydrocarbons are inferred to be derived from drilling operations, and the lead from suspended solids in the sample.

The later sampling event with low-flow sampling returned no detectable TRH/BTEXN, phenols or polynuclear aromatic hydrocarbons, and (after field filtering) low levels of cadmium, copper, nickel and zinc. Arsenic, chromium, lead and mercury were undetected.

Based on these results, groundwater at the bore site on 12 July 2018 was uncontaminated with petroleum hydrocarbons. By inference, contaminated groundwater is not migrating downgradient.

Given that the sampling was done in winter after rain, it would be judicious to test this interpretation with a summer groundwater sampling event of bore MW1 for petroleum hydrocarbons and dissolved metals. If no contamination is detected sampling may be discontinued.

1 INTRODUCTION

1.1 Background

COVA has conducted site contamination investigations at the former Southern Midlands Council Works Depot (Attachment 1) which will be redeveloped as the Oatlands Aquatic Centre.

In May 2018 COVA commissioned William C Cromer Pty Ltd (WCCPL) to do a qualitative groundwater risk assessment[1] of the site and environs. Based on general hydrogeological principles, published geology, water bore records, and COVA site investigations, the risk assessment concluded that:

- groundwater at unknown depth (but in early 2018 more than 2.5m) is likely to be present in fractures in Triassic sandstone bedrock under the Works Depot site, and in the fractures is moving at an (unknown) rate in a general northerly direction to discharge at Dulverton Rivulet
- the volume of mid-1990s spillage from a former AST (removed about 15 years ago) is unknown; given this uncertainty, it is possible that diesel contaminants have migrated to groundwater
- it is unlikely that diesel contaminants from the former UPSS (removed in February 2018) have migrated to groundwater, and
- it is not possible to ascertain whether or not groundwater at the site has been affected by diesel contamination, and this uncertainty ought to be followed up.

A two-stage investigation was recommended:

1.2 Recommended stages of investigation

1.2.1 Stage 1

A single groundwater bore should be sited about 10 – 20m downgradient from the AST site. Nominal depth is uncertain, but the bore should be drilled deep enough to intersect water bearing fractures in the sandstone bedrock. Water level in the bore will then rise to the water table. The bore should be logged and cased, and the groundwater sampled for diesel contamination:

- if no contamination is present, the bore may be capped, and/or backfilled and abandoned. The conclusion arising is that groundwater has not been affected by diesel contamination and no further groundwater investigations are warranted.
- if contamination is present, the bore should remain intact while a risk assessment determines contamination acceptability on human health and ecological grounds, If contaminant levels are judged to be acceptable, the bore may be capped, and/or backfilled and abandoned. If found to be unacceptable, Stage 2 should be considered.

[1] Cromer, W. C. (2018a). *Former Council Works Depot, Oatlands. Qualitative Groundwater Risk Assessment.* Unpublished report for COVA by William C Cromer Pty Ltd, 9 May 2018.

1.2.2 Stage 2

An upgradient bore, and a downgradient bore (offset so the three bores form a triangle) should be drilled, cased and sampled in a manner similar to the Stage 1 bore. Depth to the water table, the groundwater flow direction beneath the site, and the lateral extent of contamination, can be established. Analytical results will assist in human health and ecological risk assessments. Depending on these, all bores may be capped and/or abandoned, or further investigations may be required. For example, investigations might include (but not necessarily be limited to) installing a digital water level recorder in one of the bores to monitor water table fluctuations, and/or aquifer testing to establish permeability, storativity and groundwater flow volumes and rates.

1.3 Stage 1 drilling and groundwater sampling

Stage 1 was undertaken in July 2018. It comprised Stage 1a and Stage 1b.

Stage 1a on 5 July 2018 included:

- the drilling (using a solid auger to 1m, then down-the-hole-hammer) and logging of groundwater exploration bore MW1 to a depth of 14.0mbg[2],
- bagging continuous drill-return samples (sand) at 0.5m intervals, testing each for volatile hydrocarbons[3] using a photoionisation detector (PID), and selecting five based on low and high PID readings for laboratory petroleum hydrocarbon analysis
- collecting an opportunistic groundwater sample using air-lift techniques after drilling, and submitting the unfiltered sample for laboratory analysis for petroleum hydrocarbons and lead, and
- completion of the hole with casing and screen, gravel pack, bentonite seal and surface concrete and lockable monument.

Stage 1b on 12 July 2018 involved:

- PID testing of the air column above the water table immediately on opening the cap
- measuring the standing water level (SWL) in the bore, and
- conducting low-flow pumping and collecting two water samples – the first at the water table at the start of pumping, and (when water field parameters had stabilised sufficiently), the second opposite water bearing fracture(s) near 10.4 – 11mbg.

1.4 Personnel

The Stage 1a drilling and bore completion was conducted by KMR Drilling. Supervision, logging, testing and sampling was done by hydrogeologist Bill Cromer of WCCPL, assisted by consulting geologist Genevieve Bremner. The Stage 1b sampling was done by Bill Cromer and Genevieve Bremner.

[2] bg = below ground; btoc = below top of casing (stickup = 0.60m)

[3] It was not expected that any original diesel contaminants in fractured bedrock or groundwater would alone produce volatile hydrocarbons, but if such contamination were present its volatilisation may have been generated by the heat and dynamic energy of drilling.

The participating laboratory for the Stage 1a and 1b analyses was the NATA-registered Australian Laboratory Services in Springvale, Victoria.

2 RESULTS

2.1 Presentation

Most results are presented in Attachments as follows:

- The location of MW1 is shown in Attachment 1.
- Selected site photos are presented in Attachment 2.
- The detailed log of MW1 (and labelled drill returns from it) is presented in Attachment 3.
- For the Stage 1a sampling event, the chain of custody, sample notification receipt and laboratory report are presented in Attachment 4.
- For the Stage 1b sampling event, the field sampling record, chain of custody, sample notification receipt and laboratory report are presented in Attachment 5.

The following Sections briefly report the results.

2.2 Drilling MW1

2.2.1 Bore location

MW1 was located:

- in an inferred downgradient direction from nearby exploratory excavations which detected petroleum hydrocarbon (diesel) contamination in soils,
- about 10m downgradient (and slightly northwest) from the former diesel UPSS,
- on a boundary fence so as to be out of the way of future site construction works, and
- immediately upgradient from possible future residential development at the north-northwesten end of the site.

This location is considered to be in a favourable position to check for downgradient migration of known contaminants in groundwater resulting from the former Council depot.

2.2.2 Interpreted geology in MW1

MW1 passed through about 0.5m of silty sand fill, and a similar thickness of silty sand soil, before penetrating 13m of weathered bedrock. From drill returns, the bedrock was interpreted as weathered sandstone, with minor interbedded siltstone at 8-9m and 11.5 – 12m (Attachment 1 and Figure 1).

Judging from adjacent bedrock exposures in site excavations, the bedrock is subhorizontal, sparsely subvertically fractured, and interpreted as Triassic in age.

2.2.3 PID results of bagged drill returns

PID results for drill returns are presented in the drill log in Attachment 3. After about 15 minutes storage in sealed plastic bags, values ranged from 0.2 – 1.9ppm (average 0.6ppm).

2.2.4 Groundwater occurrence and yield

MW1 passed through probably fractured bedrock. Groundwater was encountered in a water-bearing fracture between about 10.4 – 11.0mbg (Attachment 3). After airlifting on two occasions (1200hrs and 1300hrs on 5 July 2018) yield was estimated to be in the 1 – 2L/min range. The water was coloured brown with suspended solids.

2.2.5 Groundwater field parameters on 5 July 2018

Field parameters were measured three times.

At 1200hrs during airlifting, readings were:

electrical conductivity (EC) = 957µS/cm
pH = 6.28
Redox = 167mV
PID = 0.0ppm (with the PID intake placed close to the groundwater surface in a bucket)

At 1300hrs during airlifting and when sample MW1 was collected, readings were:

electrical conductivity (EC) = 1616µS/cm
pH = 5.65
Redox = 305mV
PID = 0.0ppm (with the PID intake placed close to the groundwater surface in a bucket)

At 1315 after about 25L of groundwater had been hand-bailed for partial bore development readings were:

electrical conductivity (EC) = 1645µS/cm
pH = 5.22
Redox = 281mV
PID = 0.4ppm (with the PID intake placed close to the groundwater surface in a bucket)

2.2.6 Groundwater and drill returns sampling on 5 July 2018

Groundwater sample MW1 (5 July 2018) was collected during airlifting at 1300hrs, from a depth near the base of the hole. Laboratory results for this opportunistic sample, and five soil samples, are presented in Attachment 4.

- Groundwater sample MW1 returned 1990µg/L TRH (>C10 – C40 Fraction; sum) and 0.627mg/L lead, and non-detectable TRH (C6-C10) and BTEXN.
- The five drill return samples returned no detectable TRH/BTEXN

2.2.7 Groundwater sampling on 12 July 2018

Groundwater samples MW1A and MW1B were collected during low-flow pumping at 1056hrs and 1222hrs respectively on 12 July 2018.

Sample MW1A was obtained from the depth interval 6.7 – 7mbtoc (6.1 – 6.4mbg, in the upper 0.6m or so of the water column) to assess whether petroleum hydrocarbons had migrated up

the water column in the week since the bore had been drilled. This sample was deliberately taken with minimal disturbance of the water column, so no field parameter stabilisation was required. Field parameters at the time of collection were:

electrical conductivity (EC) = 1686µS/cm
pH = 5.81
Redox = 201mV
Temperature (^{0}C) = 10.7

Sample MW1B was collected from a depth of about 11mbtoc (10.4mbg) where the water bearing fractures were encountered during drilling. The intent was to sample at low flow to ensure that the sample reflected formation water rather than bore-column water, and after a reasonable volume (>3 bore volumes) had been extracted so that the sample was likely to be sourced from a representative bulk of fractured bedrock. Forty-three litres[4] were pumped before the sample was collected.

Field parameters at time of collection were:

electrical conductivity (EC) = 1682µS/cm
pH = 5.16
Redox = 231mV
Temperature (^{0}C) = 12.6

The field record sheet and laboratory results for this sampling event are presented in Attachment 5.

- MW1A and MW1B returned no detectable TRH/BTEXN, phenols and polynuclear aromatic hydrocarbons.
- From field-filtered sample bottles, MW1A and MW1B respectively contained low concentrations of cadmium (0.9 and 1µg/L), copper (5 and 1µg/L), nickel (48 and 33µg/L) and zinc (104 and 58µg/L), but non-detectable arsenic, chromium, lead and mercury.

2.2.8 QA/QC results (Attachment 5)

Quality assurance sample QA1 (field blank; uncapped during sampling) returned undetectable metals, TPH, TRH and BTEXN. Quality assurance sample QA4 (trip blank) returned undetectable TPH and TRH (C6-C9), and BTEXN. No rinsate control was required because samples MW1A and MW1B were collected during low flow pumping directly from polycarbonate tubing (c. 20m long) into the sample containers.

[4] The bore contained about 15L of water at the time of sampling MW1B.

Table 1. Summary of sampling conditions, field parameters and laboratory results

					Field parameters		Lab. Results				
Stage	**Date sampled**	**Sample ID**	**Depth sampled (mbg)**	**Sampling conditions**	**EC (µS/cm)**	**pH**	**TRH (µg/L)**	**BTEXN (µg/L)**	**Phenols (µg/L)**	**PAH (µg/L)**	**Metals (mg/L)**
1a	05-Jul-18	MW1	Near base of hole at 14m	Airlifted flow; collected in bucket; sampled after c. 10L removed; unfiltered; water coloured brown with suspended solids	1,616	5.65	1,990 (>C10-C40)	Not detected	Not tested for		0.627 (lead)
1b	12-Jul-18	MW1A	6.1-6.4	Low flow sampling from near standing water level, after c.2L removed; water clear; field-filtered for metals analysis	1,686	5.81	Not detected	Not detected	Not detected	Not detected	Cadmium 0.9µg/L, copper 5µg/L, nickel 48µg/L, and zinc 104µg/L; non-detectable arsenic, chromium, lead and mercury.
		MW1B	10.4	Low flow sampling, after c.43L removed; water slightly brown with suspended solids; field-filtered for metals analysis	1,682	5.16	Not detected	Not detected	Not detected	Not detected	Cadmium 1.0µg/L, copper 1µg/L, nickel 33µg/L, and zinc 58µg/L; non-detectable arsenic, chromium, lead and mercury.

3 DISCUSSION

3.1 Hydrogeological model

Figure 1 is an interpreted hydrogeological model for the MW1 drill site. This model supports that presented in Cromer (2018a) with respect to geology, groundwater occurrence in fractures under unconfined conditions[5], and depth to the water table ("likely to be more than 2-3m").

A water level from a single bore (or two bores, or three bores in a line) cannot confirm the predicted north-northwest groundwater flow direction. At least three non-linear bores are required.

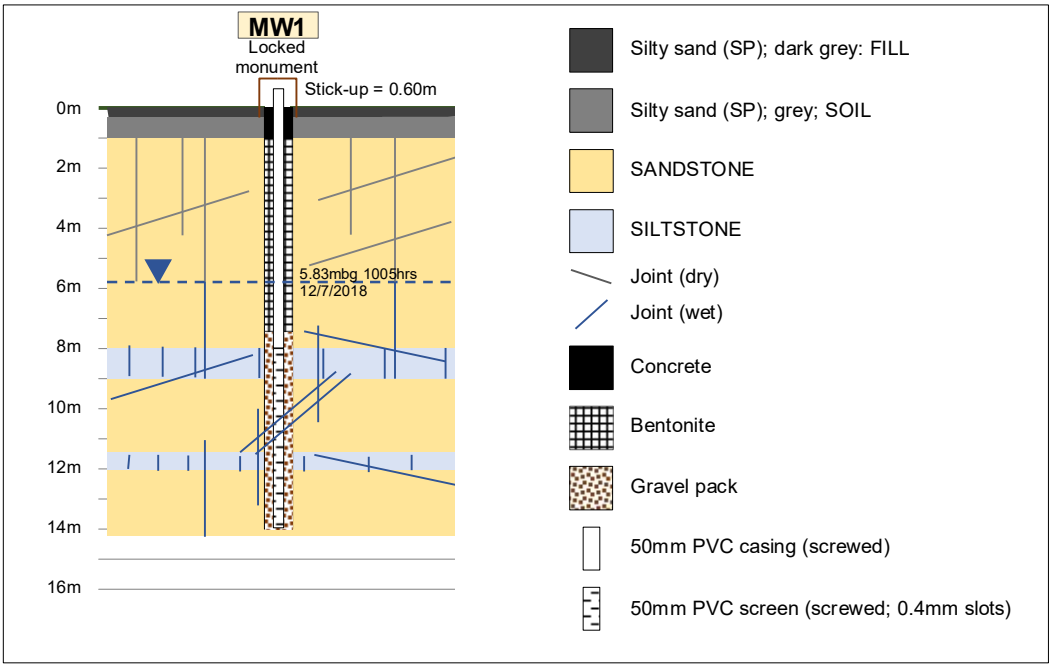


Figure 1. Interpreted hydrogeological cross section and bore completion details. It is inferred that groundwater only enters the bore from one or more water-bearing fractures which drilling intersected in the interval 10.6 – 11mbg, and that the standing water level of 5.83mbg on 12 July 2018 corresponds to the piezometric level ("water table" in adjacent wet fractures) on the same date. The groundwater is unconfined.

3.2 PID field results

The positive PID field results in bagged drill returns (0.2 – 1.9ppm; average 0.6ppm) on 5 July are low, and may reflect diesel fumes from plant/equipment at the site, and/or lubricating oils and greases used at the drill rod threads, and possible volatilisation of lubricating fluids by heat generate at the drill bit.

Similar low PID values were obtained from the groundwater airlifted during drilling on 5 July, and may be due to the same down-hole causes.

[5]Almost all Tasmanian "hard" rocks like sandstone, dolerite, etc. are "unconfined fractured rock aquifers" because the fractures are a three-dimensional network open to atmospheric pressure, and groundwater is recharged directly from infiltrating rain.

After about 24 hours in the same sealed bags, all drill return samples were re-tested and each returned 0.0ppm.

3.3 Groundwater laboratory results

3.3.1 Petroleum hydrocarbons in groundwater sample MW1

Like the PID results, a possible explanation for the petroleum hydrocarbons (1990µg/L >C10 – C40 Fraction) in MW1 on 5 July 2018 is contamination from the drilling equipment and procedures. (The sampling was intentionally opportunistic under non-standard conditions, but it was considered worthwhile as a preliminary indicator of contaminants – particularly if high levels were present.)

The lead value of 0.627mg/L is relatively high. The source is likely to be suspended matter in the brown-coloured groundwater airlifted from the hole.

3.3.2 No detectable hydrocarbons in groundwater samples MW1A and MW1B

These results from 12 July 2018 suggest that the groundwater in bore MW1 is not currently showing any impacts from hydrocarbon contamination detected and remediated in soils at the site.

The source(s) of the dissolved cadmium, copper, nickel[6] and zinc are unclear, particularly since associated heavy metals (arsenic, chromium, lead and mercury) were not detected.

4 RECOMMENDATION

Given that sampling was done in winter after rains, it is recommended that a groundwater sampling event be conducted at MW1 during the coming summer. The samples, collected in a similar fashion to MW1A and MW1B, should be analysed for TPH/TRH/BTEXN and dissolved metals.

Depending on results, sampling may be discontinued.

W. C. Cromer
Principal

[6] The nickel results exceed the NHMRC (2017) Drinking Water Guideline (Health) of 20µg/L.

This report is and must remain accompanied by the following Attachments:

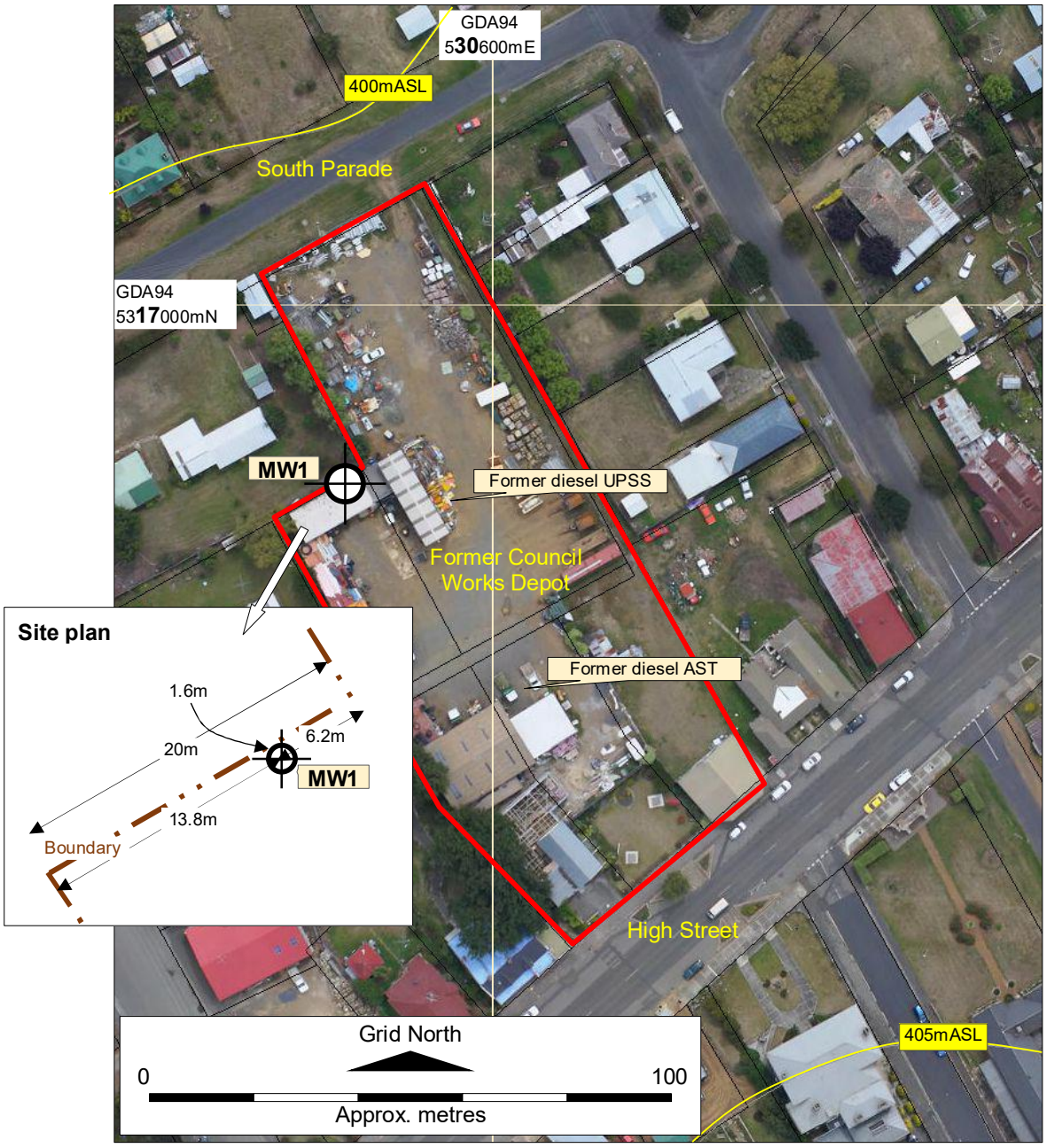
Attachment 1. Aerial imagery showing the location of MW1 (1 page)
Attachment 2. Site, drill returns, and completed bore photographs (3 pages)
Attachment 3. Log of MW1 and photo of core box samples (3 pages)
Attachment 4. Laboratory documentation for initial soil and groundwater sampling on 5 July 2018 (14 pages)
Attachment 5. Laboratory documentation for Stage 1 groundwater sampling on 12 July 2018 (16 pages)

Attachment 1

(1 page)

Aerial imagery showing the location of MW1

Sources: www.thelist.tas.gov;
Approximate locations of removed UPSS and AST from information provided by COVA
Topographic contours highlighted



Attachment 2

(3 pages)

Site, drill returns, and completed bore photographs

Plate 1.1 (above). View NNW past bore MW1 towards South Parade; 5 July 2018.

Plate 1.2 (below). View WSW past bore MW1, 5 July 2018.

Plate 1.3 (above). Continuous drill-return samples (sand) bagged at 0.5m intervals. These were tested on site (and 24 hours later in the office) with a PID. Five samples (arrowed) were collected for laboratory analysis for petroleum hydrocarbons. Start is at top left; end is at bottom right.

Plate 1.4 (below). A portion of each 0.5m sample was placed in a core box for photography. The surface 0.5m sample was fill, the second was soil, and the remainder were sand (light brown, light yellowish brown, etc) except for the light grey intervals (silt, sandy silt). A trace of groundwater was encountered at about 10.6 – 11m, and after drilling past 12m, no drill returns could be sampled.

Plate 1.5. MW1 completed with lockable monument, 5 July 2018.

Attachment 3
(3 pages)
Log of MW1 and photo of core box samples

William C. Cromer Pty. Ltd. Environmental, engineering and groundwater geologists

Log of groundwater monitoring bore

MW1
Sheet 1 of 2

Project Oatlands Pool **Location** Oatlands

Coordinates 530573mE, 5316964mN (est., unsurveyed)
Datum GDA94
RL 400mASL (est., unsurveyed)
Inclination Vertical
Bearing

Drill type HydraPower Rig 7
Equipment 150mm solid auger to 4.1m; 100mm hammer to EOH @14m; 110mm blade bit after hammer to 12m
Drill fluid(s) None

Hole started 5 July 2018
Hole finished 5 July 2018
Drilled by Des Fraser (KMR)
Logged by G. Bremner
Checked by W. C. Cromer

Bit type/size	Lift	Water	Notes (Samples and tests (Samples in red type analyses for TRH/BTEXN))	Metres RLmAHD	Metres Depth	Graphic log	USCS	Materials (Soil type, colour, plasticity or particle characteristics, secondary and minor components)	Moisture condition	Consistency Density index	PID (ppm)	Odour	Completion details	Structure, geology, interp
Auger			MW1 0-0.5				SP	Silty SAND; dark grey	M	L-MD	0.4			Fill
			MW1 0.5-1.0				SP	Silty SAND; grey			0.5	Slight		Soil
Hammer (reamed hole with blade bit after hammer) 5.83mbg 1056hrs 12 July 2018			MW1 1.0-1.5		1.0		SP	SAND: yellow-orange; fine grained	D		0.3			Weathered Triassic sandstone
			MW1 1.5-2.0								0.8			
			MW1 2.0-2.5		2.0			Bright orange			0.6			
			MW1 2.5-3.0					Orange			1.9			
			MW1 3.0-3.5		3.0						1.1			
			MW1 3.5-4.0					Light yellow			0.2			
			MW1 4.0-4.5		4.0			Orange-light orange			0.4			
			MW1 4.5-5.0								0.2			
			MW1 5.0-5.5		5.0						0.1			
			MW1 5.5-6.0								0.1			
			MW1 6.0-6.5		6.0			Water sample MW1A collected by low flow pump from 6.1 – 6.4mbg 1056hrs 12/7/18			0.2			
			MW1 6.5-7.0								0.5			
			MW1 7.0-7.5		7.0			Bright orange			0.7			
			MW1 7.5-8.0								1.7			
			MW1 8.0-8.5		8.0		ML	SILT: light grey; some sand			0.7			Weathered siltstone
			MW1 8.5-9.0						M		0.3			
					9.0									

SOIL: Consistency (silt, clay, sandy clay, silty clay) **VS** = Very Soft (<25kPa; exudes in fingers when squeezed); **S** = Soft (25-50kPa; easily penetrated by fist); **F** = Firm (50-100kPa; easily penetrated by thumb); **St** = Stiff (100-200kPa; indented by thumb, penetrated with difficulty); **VSt**= Very Stiff (200-400kPa; easily penetrated by thumbnail); **H** = Hard (>400kPa; indented by thumbnail with difficulty); **Fb** = Friable (crumbles or powders when scraped by thumbnail)
Relative density (sand and gravel) **VL** = Very Loose (ravelling); **L** = Loose (easy shovelling); **MD** = Medium Dense (hard shovelling); **D** = Dense (picking); **VD** = Very Dense (hard picking)
ROCK: Weathering (changes caused by subaerial processes): **FR** = Fresh (no decomp or colour changes); **SW** = Slightly Weathered (stained/bleached on joints; no or little change in strength); **MW** = Moderately Weathered (Whole rock stained/bleached; original colour not recognisable; no or little change in strength); **HW** = Highly Weathered (Whole rock stained/bleached; original colour not recognisable; significant change in strength; some primary minerals now clay; change in porosity); **XE** = Extremely Weathered (material has soil properties; structure, texture and fabric still visible); **RS** = Residual Soil (material has soil properties; original texture, fabric no longer visible; no significant transport)
Alteration (changes caused by hot gases/liquids at depth): **SA** = Slightly Altered (Slightly discoloured; no or little change in strength); **MA** = Moderately Altered (Whole rock stained/bleached; original colour not recognisable; no or little change in strength); **HA** = Highly Altered (Whole rock stained/bleached; original colour not recognisable; significant change in strength; some primary minerals now clay; change in porosity); **XA** = Extremely Altered (material has soil properties; structure, texture and fabric still visible)
Strength VL = Very Low (Material crumbles under firm blow with sharp end of pick; can be peeled with knife; pieces up to 30mm thick broken by finger pressure); **L** = Low (Easily scored with knife; indentations 1-3mm with firm blow of pick point; dull hammer sound; sharp edges friable, broken by handling); **M** = Medium (Readily scored with knife; piece of core 150mm x 50mm broken by hand with difficulty); **H** = High (rock rings under hammer; piece of core 150mm x 50mm broken by pick with single firm blow); **VH** = Very High (hand specimen breaks with >1 blow of pick; rock rings); **EH** = Extremely High (specimen needs many hammer blows to break; rock rings under hammer)

William C. Cromer Pty. Ltd. Environmental, engineering and groundwater geologists

Log of groundwater monitoring bore

MW1
Sheet 2 of 2

Project Oatlands Pool **Location** Oatlands

Coordinates 5266826mE, 5251361mN (est., unsurveyed)
Datum GDA94
RL 400mASL (est., unsurveyed)
Inclination Vertical
Bearing

Drill type HydraPower Rig 7
Equipment 150mm solid auger to 4.1m; 100mm hammer to EOH @14m; 110mm blade bit after hammer to 12m
Drill fluid(s) None

Hole started 5 July 2018
Hole finished 5 July 2018
Drilled by Des Fraser (KMR)
Logged by G. Bremner
Checked by W. C. Cromer

Bit type/size	Lift	Water	Notes (Samples and tests)	Metres RLmAHD	Metres Depth	Graphic log	USCS	Materials (Soil type, colour, plasticity or particle characteristics, secondary and minor components)	Moisture condition	Consistency Density index	PID (ppm)	Odour	Completion details	Structure, geology, interp
Hammer		11m 1300hrs/5 July 2018	MW1 9.0-9.5				SP	SAND: orange	M		0.2			Weathered sandstone
			MW1 9.5-10.0								0.2			
			MW1 10.0-10.5	10.0							1.0			
			MW1 10.5-11.0					Water sample MW1B collected by low flow pump from 10.4 – 11mbg 1222hrs 12/7/18			0.9	Slight		
			MW1 11.0-11.5					Dark orange	W-M		0.7			
			MW1 11.5-12.0				ML	SILT; light grey; some sand	M-D		0.3			Weathered siltstone
				12.0			SP	SAND: orange. 12-14m too wet to collect sample. Interpreted as orange sandstone from slurry return.	W		No readings			Weathered sandstone
				13.0										
				14.0				End hole as required at 14.0m.						
				15.0										
				16.0										
				17.0										
				18.0										

Flow, field parameters and sampling 5 July 2018

1200hrs: Air-lift flow after 5 mins. est. 2L/min
Field water parameters:
EC= 957µS; pH= 6.28; Redox= 167mV
PID= 0.0ppm in sample bucket

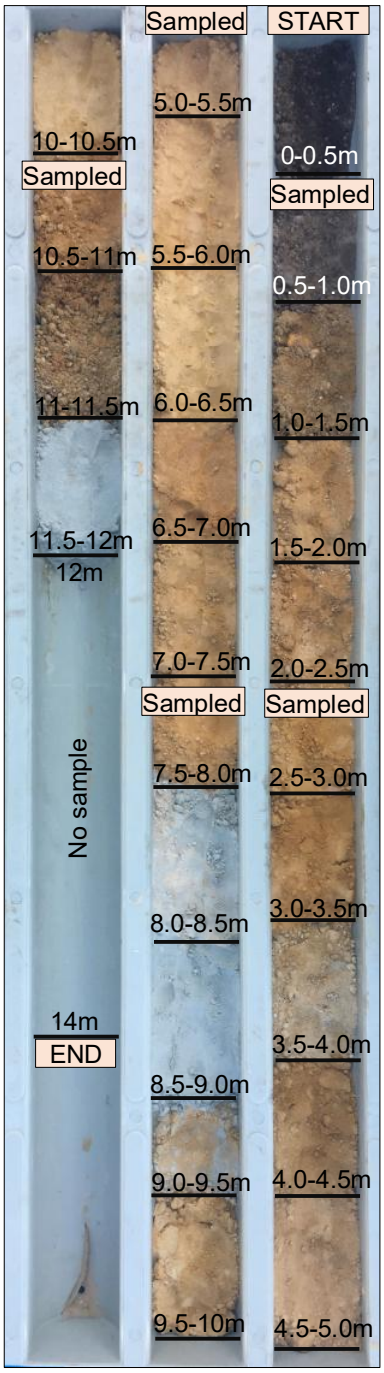
1300hrs: Air-lift flow after 10 mins. est. 1-2L/min
Field water parameters:
EC= 1616µS; pH= 5.65; Redox= 305mV
PID= 0.0ppm in sample bucket
Sample MW1 collected

1315hrs: Removed 25L from 9mbg by hand bailer for partial hole development
Field water parameters:
EC= 1645µS; pH= 5.22; Redox= 281mV
PID= 0.4ppm in sample bucket

Hole completed with bottom cap. 50mm C18 PVC machine-slotted screen 14.0 – 8.0m (slots 0.4mm); solid PVC 8.0-0.6m (stickup); 1-3mm gravel pack 14.0-7.5m; bentonite chips 7.5-1.0m; quick-set concrete to surface; completed with yellow metal monument; locked

SOIL: Consistency (silt, clay, sandy clay, silty clay) **VS** = Very Soft (<25kPa; exudes in fingers when squeezed); **S** = Soft (25-50kPa; easily penetrated by fist); **F** = Firm (50-100kPa; easily penetrated by thumb); **St** = Stiff (100-200kPa; indented by thumb, penetrated with difficulty); **VSt**= Very Stiff (200-400kPa; easily penetrated by thumbnail); **H** = Hard (>400kPa; indented by thumbnail with difficulty); **Fb** = Friable (crumbles or powders when scraped by thumbnail)
Relative density (sand and gravel) **VL** = Very Loose (ravelling); **L** = Loose (easy shovelling); **MD** = Medium Dense (hard shovelling); **D** = Dense (picking); **VD** = Very Dense (hard picking)
ROCK: Weathering (changes caused by subaerial processes): **FR** = Fresh (no decomp or colour changes); **SW** = Slightly Weathered (stained/bleached on joints; no or little change in strength); **MW** = Moderately Weathered (Whole rock stained/bleached; original colour not recognisable; no or little change in strength); **HW** = Highly Weathered (Whole rock stained/bleached; original colour not recognisable; significant change in strength; some primary minerals now clay; change in porosity); **XE** = Extremely Weathered (material has soil properties; structure, texture and fabric still visible); **RS** = Residual Soil (material has soil properties; original texture, fabric no longer visible; no significant transport)
Alteration (changes caused by hot gases/liquids at depth): **SA** = Slightly Altered (Slightly discoloured; no or little change in strength); **MA** = Moderately Altered (Whole rock stained/bleached; original colour not recognisable; no or little change in strength); **HA** = Highly Altered (Whole rock stained/bleached; original colour not recognisable; significant change in strength; some primary minerals now clay; change in porosity); **XA** = Extremely Altered (material has soil properties; structure, texture and fabric still visible)
Strength VL = Very Low (Material crumbles under firm blow with sharp end of pick; can be peeled with knife; pieces up to 30mm thick broken by finger pressure); **L** = Low (Easily scored with knife; indentations 1-3mm with firm blow of pick point; dull hammer sound; sharp edges friable, broken by handling); **M** = Medium (Readily scored with knife; piece of core 150mm x 50mm broken by hand with difficulty); **H** = High (rock rings under hammer; piece of core 150mm x 50mm broken by pick with single firm blow); **VH** = Very High (hand specimen breaks with >1 blow of pick; rock rings); **EH** = Extremely High (specimen needs many hammer blows to break; rock rings under hammer)

MW1 borehole photo and sampling intervals



Attachment 4

(14 pages including this page)

Laboratory documentation for initial soil and groundwater sampling on 5 July 2018

**Chain of custody, sample notification receipt,
certificate of analysis and QC1 for ALS work order EM1810853**

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please link →

ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com
NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com
WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: William C Cromer Pty Ltd	TURNAROUND REQUIREMENTS Standard TAT (Mon-Fri days): (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	FOR LABORATORY USE ONLY (Circle)
OFFICE: 74A Channel Highway, Taroona, Tasmania 7053		Custody Seal Intact? Yes No N/A
PROJECT: OATLANDS POOL	ALS QUOTE NO MEBQ-190-14	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: COVA10	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Bill Cromer	CONTACT PH: 0408 122 127; 03 6227 8970 OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Genevieve Bremner	SAMPLER MOBILE: 0418 616 659	
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default): Default	
Email Reports to (will default to PM if no other addresses are listed): billcromer@bigpond.com		
Email Invoice to (will default to PM if no other addresses are listed): billcromer@bigpond.com		

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Bill Cromer			
DATE/TIME: 1500hrs 5 July 2018	DATE/TIME:	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: Measured in field: EC, pH, DO, Redox of sample MW1

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	W-6	S-4							Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	MW1	05/07/18:1300	W		4	1								
	MW1 0.5-1m	05/07/18:1127	S		1		1							
	MW1 2.5-3m	05/07/18:1128	S		1		1							
	MW1 5-5.5m	05/07/18:1129	S		1		1							
	MW1 7.5-8m	05/07/18:1130	S		1		1							
	MW1 10.5-11m	05/07/18:1131	S		1		1							
				TOTAL	9	1	5							

Water Container Codes: P - Unpreserved Plastic; N - Nitric Preserved Plastic; ORC - Nitric Preserved ORC; SH - Sodium Hydroxide/Cd Preserved; S - Sodium Hydroxide Preserved Plastic; AG - Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1810853**

Client	: **WILLIAM C CROMER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MR BILL CROMER	Contact	: Shirley LeCornu
Address	: 74A CHANNEL HIGHWAY TAROONA TASMANIA 7053	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: billcromer@bigpond.com	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6227 8970	Telephone	: +61-3-8549 9630
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: OATLANDS POOL	Page	: 1 of 2
Order number	: COVA10	Quote number	: EM2017WILCRO0001 (EN/222/17)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Genevieve Bremner		

Dates

Date Samples Received	: 06-Jul-2018 11:10	Issue Date	: 06-Jul-2018
Client Requested Due Date	: 13-Jul-2018	Scheduled Reporting Date	: **13-Jul-2018**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 3.5°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 6 / 6

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

RIGHT SOLUTIONS | RIGHT PARTNER

Issue Date	: 06-Jul-2018
Page	: 2 of 2
Work Order	: EM1810853 Amendment 0
Client	: WILLIAM C CROMER PTY LTD

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-04 TRH/BTEXN
EM1810853-002	05-Jul-2018 11:27	MW1 0.5-1m	✓	✓
EM1810853-003	05-Jul-2018 11:28	MW1 2.5-3m	✓	✓
EM1810853-004	05-Jul-2018 11:29	MW1 5.5-5m	✓	✓
EM1810853-005	05-Jul-2018 11:30	MW1 7.5-8m	✓	✓
EM1810853-006	05-Jul-2018 11:31	MW1 10.5-11m	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-06T TRH/BTEXN/Total Pb
EM1810853-001	05-Jul-2018 13:00	MW1	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

BILL CROMER

- *AU Certificate of Analysis - NATA (COA)	Email	billcromer@bigpond.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	billcromer@bigpond.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	billcromer@bigpond.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	billcromer@bigpond.com
- A4 - AU Tax Invoice (INV)	Email	billcromer@bigpond.com
- Chain of Custody (CoC) (COC)	Email	billcromer@bigpond.com
- EDI Format - ENMRG (ENMRG)	Email	billcromer@bigpond.com

William C Cromer Pty Ltd: Consulting engineering, groundwater and environmental geologists
www.williamccromer.com

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1810853**	Page	: 1 of 5
Client	: **WILLIAM C CROMER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MR BILL CROMER	Contact	: Shirley LeCornu
Address	: 74A CHANNEL HIGHWAY TAROONA TASMANIA 7053	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6227 8970	Telephone	: +61-3-8549 9630
Project	: OATLANDS POOL	Date Samples Received	: 06-Jul-2018 11:10
Order number	: COVA10	Date Analysis Commenced	: 06-Jul-2018
C-O-C number	: ----	Issue Date	: 11-Jul-2018 15:26
Sampler	: Genevieve Bremner		
Site	: ----		
Quote number	: EN/222/17		
No. of samples received	: 6		
No. of samples analysed	: 6		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP080: Presence of headspace in particular sample EM1810853_01 may have led to loss of volatiles prior to analysis. Results should be scrutinised accordingly.

Page	: 3 of 5
Work Order	: EM1810853
Client	: WILLIAM C CROMER PTY LTD
Project	: OATLANDS POOL

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	MW1 0.5-1m	MW1 2.5-3m	MW1 5.5-5m	MW1 7.5-8m	MW1 10.5-11m
				Client sampling date / time	05-Jul-2018 11:27	05-Jul-2018 11:28	05-Jul-2018 11:29	05-Jul-2018 11:30	05-Jul-2018 11:31
Compound	CAS Number	LOR	Unit		EM1810853-002	EM1810853-003	EM1810853-004	EM1810853-005	EM1810853-006
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		9.5	7.1	6.7	6.0	9.5
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		78.3	76.2	77.3	78.2	76.7
Toluene-D8	2037-26-5	0.2	%		80.9	80.0	78.3	82.0	79.8
4-Bromofluorobenzene	460-00-4	0.2	%		110	108	113	111	108

Page	: 4 of 5
Work Order	: EM1810853
Client	: WILLIAM C CROMER PTY LTD
Project	: OATLANDS POOL

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW1	----	----	----	----
				Client sampling date / time	05-Jul-2018 13:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1810853-001	-------	-------	-------	-------	
				Result	----	----	----	----	
EG020T: Total Metals by ICP-MS									
Lead	7439-92-1	0.001	mg/L	0.627	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----	
C10 - C14 Fraction	----	50	µg/L	130	----	----	----	----	
C15 - C28 Fraction	----	100	µg/L	1280	----	----	----	----	
C29 - C36 Fraction	----	50	µg/L	520	----	----	----	----	
^ C10 - C36 Fraction (sum)	----	50	µg/L	1930	----	----	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	----	----	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	----	----	----	----	
>C10 - C16 Fraction	----	100	µg/L	190	----	----	----	----	
>C16 - C34 Fraction	----	100	µg/L	1560	----	----	----	----	
>C34 - C40 Fraction	----	100	µg/L	240	----	----	----	----	
^ >C10 - C40 Fraction (sum)	----	100	µg/L	1990	----	----	----	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	190	----	----	----	----	
EP080: BTEXN									
Benzene	71-43-2	1	µg/L	<1	----	----	----	----	
Toluene	108-88-3	2	µg/L	<2	----	----	----	----	
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----	
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----	
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----	
^ Total Xylenes	----	2	µg/L	<2	----	----	----	----	
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----	
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----	
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%	87.4	----	----	----	----	
Toluene-D8	2037-26-5	2	%	82.1	----	----	----	----	
4-Bromofluorobenzene	460-00-4	2	%	107	----	----	----	----	

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

William C Cromer Pty Ltd: Consulting engineering, groundwater and environmental geologists
www.williamccromer.com

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1810853**	Page	: 1 of 5
Client	: **WILLIAM C CROMER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MR BILL CROMER	Telephone	: +61-3-8549 9630
Project	: OATLANDS POOL	Date Samples Received	: 06-Jul-2018
Site	: ----	Issue Date	: 11-Jul-2018
Sampler	: Genevieve Bremner	No. of samples received	: 6
Order number	: COVA10	No. of samples analysed	: 6

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
TRH - Semivolatile Fraction	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
TRH - Semivolatile Fraction	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
MW1 0.5-1m, MW1 2.5-3m, MW1 5.5-5m, MW1 7.5-8m, MW1 10.5-11m	**05-Jul-2018**	----	----	----	**09-Jul-2018**	19-Jul-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
MW1 0.5-1m, MW1 2.5-3m, MW1 5.5-5m, MW1 7.5-8m, MW1 10.5-11m	**05-Jul-2018**	**06-Jul-2018**	19-Jul-2018	✓	**09-Jul-2018**	19-Jul-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
MW1 0.5-1m, MW1 2.5-3m, MW1 5.5-5m, MW1 7.5-8m, MW1 10.5-11m	**05-Jul-2018**	**09-Jul-2018**	19-Jul-2018	✓	**09-Jul-2018**	18-Aug-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
MW1 0.5-1m, MW1 2.5-3m, MW1 5.5-5m, MW1 7.5-8m, MW1 10.5-11m	**05-Jul-2018**	**06-Jul-2018**	19-Jul-2018	✓	**09-Jul-2018**	19-Jul-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
MW1 0.5-1m, MW1 2.5-3m, MW1 5.5-5m, MW1 7.5-8m, MW1 10.5-11m	**05-Jul-2018**	**09-Jul-2018**	19-Jul-2018	✓	**09-Jul-2018**	18-Aug-2018	✓

Page	: 3 of 5
Work Order	: EM1810853
Client	: WILLIAM C CROMER PTY LTD
Project	: OATLANDS POOL

Matrix: **SOIL** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) MW1 0.5-1m, MW1 2.5-3m, MW1 5.5-5m, MW1 7.5-8m, MW1 10.5-11m	05-Jul-2018	06-Jul-2018	19-Jul-2018	✓	09-Jul-2018	19-Jul-2018	✓

Matrix: **WATER** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Unspecified; Lab-acidified (EG020A-T) MW1	05-Jul-2018	09-Jul-2018	01-Jan-2019	✓	09-Jul-2018	01-Jan-2019	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) MW1	05-Jul-2018	09-Jul-2018	12-Jul-2018	✓	09-Jul-2018	18-Aug-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW1	05-Jul-2018	09-Jul-2018	19-Jul-2018	✓	09-Jul-2018	19-Jul-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) MW1	05-Jul-2018	09-Jul-2018	12-Jul-2018	✓	09-Jul-2018	18-Aug-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW1	05-Jul-2018	09-Jul-2018	19-Jul-2018	✓	09-Jul-2018	19-Jul-2018	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) MW1	05-Jul-2018	09-Jul-2018	19-Jul-2018	✓	09-Jul-2018	19-Jul-2018	✓

Page	: 4 of 5
Work Order	: EM1810853
Client	: WILLIAM C CROMER PTY LTD
Project	: OATLANDS POOL

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✗ = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
TRH - Semivolatile Fraction	EP071	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
TRH - Semivolatile Fraction	EP071	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
TRH - Semivolatile Fraction	EP071	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: ✗ = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Total Metals by ICP-MS - Suite A	EG020A-T	1	1	100.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Metals by ICP-MS - Suite A	EG020A-T	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Metals by ICP-MS - Suite A	EG020A-T	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Metals by ICP-MS - Suite A	EG020A-T	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	0.00	5.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Page	: 5 of 5
Work Order	: EM1810853
Client	: WILLIAM C CROMER PTY LTD
Project	: OATLANDS POOL

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

Attachment 5

(16 pages including this page)

Laboratory documentation for Stage 1 groundwater sampling on 12 July 2018

Field notes for low flow sampling, chain of custody, sample notification receipt, certificate of analysis and QC1 for ALS work order EM1811258

Well development, Purging and Groundwater Sampling Data Sheet

Project name Oatlands Bsn | Site ID MW1 | Date 12/7/18
Performed by W. CROMER G. BREMNER | Method of sampling/purging LOW FLOW

Time	DWT (m)	Volume (L)	DO (mg/L)	EC (mS/cm)	pH	Redox (mV)	T(°C)	Comments
1035	6.43	5to6 (stickup = 0.60m)						PID = 0.3ppm @10:05
1056								Swl = 6.43m top casing
~~1056~~	start	pump		6.7-7	5to6			time 1056 12/7/18
Temp bd	1056							MW1A. Bailer collapsed
1108	6.43	2	1.59 ppm	1686µS	5.81	202	10.7	Δ (4 turns) bottom (1 filter)
1115	lowered bail	valve to	11m BTOC	=	10.4m bg	=		= water bearing zone
	~~restarted pumping~~							
1120	6.60							
1120	recirculate	pump						
1122	6.80	1	2.10	1747	5.5	197	11.5	1LW for TSS
1124	6.95	5	2.40	1728	5.43	197	12.0	PID bucket = 0.0 ppm
1126	7.05	7 10	2.28	1714	5.35	201	12.1	PID bucket = 0.0
1128								PID bucket = 0.0
1129	7.60	15	2.44	1694	5.24	213	13.1	
1132	7.75	~~20~~ 20	2.60	1701	5.21	244	13.0	
1134	7.53	~~25~~						
1137	7.35	24	2.59	1701	5.41	202	12.3	PID = 0 in bucket
11:45	7.22	26	2.6	1695	5.44	201	12.0	
11:50	7.23	28	2.67	1688	5.44	205	12.0	
11:55	7.28	30	2.71	1684	5.41	211	12.2	
11:57								PID = 0 in bucket + cooling
12:03	7.20	33	2.73	1691	5.39	203	12.0	
12:13	7.38	38	2.85	1688	5.27	212	12.4	
12:20	7.50	42	2.83	1682	5.25	214	12.7	
12 22		43						MW1B sampled (water bottle pushed in from 12 filter)
1227	7.36	48	3.18	1682	5.16	231	12.6	4 turns time 1227
QA/QC samples								
	1x	QA1	- 6/7/18 TPH/TRH + phenols (orange) 12.23pm					
	1x	QA2	-6/7/18 Metals (green-red) 12.23pm					
	2x	QA3	- EM1810884-2 12.23pm (purple)					
	1x	TRIP	BLANK					

William C Cromer Pty Ltd

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www.williamccromer.com

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com
NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com
WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: William C Cromer Pty Ltd	**TURNAROUND REQUIREMENTS** Standard TAT (List due date):	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: 74A Channel Highway, Taroona, Tasmania 7053	(Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	Custody Seal Intact? Yes No N/A
PROJECT: OATLANDS POOL STAGE 1	**ALS QUOTE NO** MEBQ-190-14	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: COVA11	**COC SEQUENCE NUMBER (Circle)** COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Bill Cromer — **CONTACT PH:** 0408 122 127; 03 6227 8970	OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Genevieve Bremner — **SAMPLER MOBILE:** 0418 616 659	**RELINQUISHED BY:**	**RECEIVED BY:**
COC emailed to ALS? (YES / NO) — **EDD FORMAT (or default):** Default	*Bill Cromer*	
Email Reports to [will default to PM if no other addresses are listed]: billcromer@bigpond.com	DATE/TIME: 1400hrs 12 July 2018	DATE/TIME:
Email Invoice to [will default to PM if no other addresses are listed]: billcromer@bigpond.com		

RELINQUISHED BY:	**RECEIVED BY:**	
DATE/TIME:	DATE/TIME:	

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: Measured in field: EC, pH, DO, Redox of samples MW1A and MW1B. Samples for metals analysis filtered in field.

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	W-27	W-5							Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	MW1A	12/07/18:1056	W		4	1								
	MW1B	12/07/18:1222	W		4	1								
	QA1	12/07/18:1223	W		1		1							Lab ID = 6/7/18 (orange)
	QA2	12/07/18:1223	W		1		1							Lab ID = 6/7/18 (green-red)
	QA3	12/07/18:1223	W		1		1							Lab ID = EM1810884-2 (purple)
	QA4	12-07-18	W		1		1							TRIP BLANK. ID not noted
				TOTAL	12	2	4							

Water Container Codes: P - Unpreserved Plastic; N - Nitric Preserved Plastic; ORC - Nitric Preserved ORC; SH - Sodium Hydroxide/Cd Preserved; S - Sodium Hydroxide Preserved Plastic; AG - Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1811258**

Client	: **WILLIAM C CROMER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MR BILL CROMER	Contact	: Shirley LeCornu
Address	: 74A CHANNEL HIGHWAY TAROONA TASMANIA 7053	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: billcromer@bigpond.com	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6227 8970	Telephone	: +61-3-8549 9630
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: OATLANDS POOL STAGE 1	Page	: 1 of 2
Order number	: COVA11	Quote number	: EM2017WILCRO0001 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: GB		

Dates

Date Samples Received	: 13-Jul-2018 11:10	Issue Date	: 16-Jul-2018
Client Requested Due Date	: 20-Jul-2018	Scheduled Reporting Date	: **20-Jul-2018**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 2	Temperature	: 5.0°C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 4 / 4

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Issue Date	: 16-Jul-2018
Page	: 2 of 2
Work Order	: EM1811258 Amendment 0
Client	: WILLIAM C CROMER PTY LTD

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-05T TRH/BTEXN/8 Metals (Total)	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-27T TRH/BTEXN/PAH/Phenols/Total 8 Metals
EM1811258-001	12-Jul-2018 10:56	MW1A			✓
EM1811258-002	12-Jul-2018 12:22	MW1B			✓
EM1811258-003	12-Jul-2018 12:23	QA1	✓		
EM1811258-004	12-Jul-2018 00:00	QA4		✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

BILL CROMER

- *AU Certificate of Analysis - NATA (COA)	Email	billcromer@bigpond.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	billcromer@bigpond.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	billcromer@bigpond.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	billcromer@bigpond.com
- A4 - AU Tax Invoice (INV)	Email	billcromer@bigpond.com
- Chain of Custody (CoC) (COC)	Email	billcromer@bigpond.com
- EDI Format - ENMRG (ENMRG)	Email	billcromer@bigpond.com

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ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1811258**	Page	: 1 of 6
Client	: **WILLIAM C CROMER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MR BILL CROMER	Contact	: Shirley LeCornu
Address	: 74A CHANNEL HIGHWAY TAROONA TASMANIA 7053	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6227 8970	Telephone	: +61-3-8549 9630
Project	: OATLANDS POOL STAGE 1	Date Samples Received	: 13-Jul-2018 11:10
Order number	: COVA11	Date Analysis Commenced	: 16-Jul-2018
C-O-C number	: ----	Issue Date	: 18-Jul-2018 17:04
Sampler	: GB		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 4		
No. of samples analysed	: 4		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Page	: 3 of 6
Work Order	: EM1811258
Client	: WILLIAM C CROMER PTY LTD
Project	: OATLANDS POOL STAGE 1

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW1A	MW1B	QA1	QA4	----
				Client sampling date / time	12-Jul-2018 10:56	12-Jul-2018 12:22	12-Jul-2018 12:23	12-Jul-2018 00:00	----
Compound	CAS Number	LOR	Unit		EM1811258-001	EM1811258-002	EM1811258-003	EM1811258-004	--------
					Result	Result	Result	Result	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L		**0.0009**	**0.0010**	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Copper	7440-50-8	0.001	mg/L		**0.005**	**0.001**	<0.001	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L		**0.048**	**0.033**	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L		**0.104**	**0.058**	<0.005	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	<1.0	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	<1.0	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	<1.0	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	<2.0	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	<1.0	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	<1.0	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	<1.0	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	<1.0	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	<1.0	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	<1.0	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	<1.0	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	<2.0	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	----	----	----

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Work Order	: EM1811258
Client	: WILLIAM C CROMER PTY LTD
Project	: OATLANDS POOL STAGE 1

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW1A	MW1B	QA1	QA4	----
				Client sampling date / time	12-Jul-2018 10:56	12-Jul-2018 12:22	12-Jul-2018 12:23	12-Jul-2018 00:00	----
Compound	CAS Number	LOR	Unit		EM1811258-001	EM1811258-002	EM1811258-003	EM1811258-004	--------
					Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L		<100	<100	<100	----	----
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	----
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	<100	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	<100	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	----
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	----
^ Total Xylenes	----	2	µg/L		<2	<2	<2	<2	----
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	<1	----
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		32.6	36.7	----	----	----

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Work Order	: EM1811258
Client	: WILLIAM C CROMER PTY LTD
Project	: OATLANDS POOL STAGE 1

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW1A	MW1B	QA1	QA4	----
				Client sampling date / time	12-Jul-2018 10:56	12-Jul-2018 12:22	12-Jul-2018 12:23	12-Jul-2018 00:00	----
Compound	CAS Number	LOR	Unit		EM1811258-001	EM1811258-002	EM1811258-003	EM1811258-004	-------
					Result	Result	Result	Result	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	1.0	%		73.2	80.1	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		96.7	104	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		87.1	95.8	----	----	----
Anthracene-d10	1719-06-8	1.0	%		84.5	92.9	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		96.4	104	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		95.5	97.8	97.5	102	----
Toluene-D8	2037-26-5	2	%		102	84.3	91.6	89.3	----
4-Bromofluorobenzene	460-00-4	2	%		93.9	73.6	97.4	95.5	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	46
2-Chlorophenol-D4	93951-73-6	23	104
2.4.6-Tribromophenol	118-79-6	28	130
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	36	114
Anthracene-d10	1719-06-8	51	119
4-Terphenyl-d14	1718-51-0	49	127
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EM1811258	Page	: 1 of 5
Client	: WILLIAM C CROMER PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR BILL CROMER	Telephone	: +61-3-8549 9630
Project	: OATLANDS POOL STAGE 1	Date Samples Received	: 13-Jul-2018
Site	: ----	Issue Date	: 18-Jul-2018
Sampler	: GB	No. of samples received	: 4
Order number	: COVA11	No. of samples analysed	: 4

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

William C Cromer Pty Ltd: Consulting engineering, groundwater and environmental geologists
www.williamccromer.com

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Unspecified; Lab-acidified (EG020A-T)							
MW1A, MW1B, QA1	12-Jul-2018	17-Jul-2018	08-Jan-2019	✓	17-Jul-2018	08-Jan-2019	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Unspecified; Lab-acidified (EG035T)							
MW1A, MW1B, QA1	12-Jul-2018	----	----	----	18-Jul-2018	09-Aug-2018	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
MW1A, MW1B	12-Jul-2018	16-Jul-2018	19-Jul-2018	✓	17-Jul-2018	25-Aug-2018	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
MW1A, MW1B	12-Jul-2018	16-Jul-2018	19-Jul-2018	✓	17-Jul-2018	25-Aug-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
MW1A, MW1B, QA1	12-Jul-2018	16-Jul-2018	19-Jul-2018	✓	17-Jul-2018	25-Aug-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
MW1A, MW1B, QA1, QA4	12-Jul-2018	16-Jul-2018	26-Jul-2018	✓	16-Jul-2018	26-Jul-2018	✓

Page	: 3 of 5
Work Order	: EM1811258
Client	: WILLIAM C CROMER PTY LTD
Project	: OATLANDS POOL STAGE 1

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
MW1A, MW1B, QA1	12-Jul-2018	16-Jul-2018	19-Jul-2018	✓	17-Jul-2018	25-Aug-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
MW1A, MW1B, QA1, QA4	12-Jul-2018	16-Jul-2018	26-Jul-2018	✓	16-Jul-2018	26-Jul-2018	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
MW1A, MW1B, QA1, QA4	12-Jul-2018	16-Jul-2018	26-Jul-2018	✓	16-Jul-2018	26-Jul-2018	✓

Page	: 4 of 5
Work Order	: EM1811258
Client	: WILLIAM C CROMER PTY LTD
Project	: OATLANDS POOL STAGE 1

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: ✗ = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

Appendix M – EPA Soil Disposal Approvals

Level 7, 134 Macquarie Street, Hobart TAS
GPO Box 1550, Hobart, TAS 7001 Australia

Enquiries: Tim Hamilton
Ph: (03) 6165 4575
Email: tim.hamilton@epa.tas.gov.au
Web: www.epa.tas.gov.au
Our Ref: (EN-EM-WM-WJ-110307_5: H830098) sma

ENVIRONMENT PROTECTION AUTHORITY

23 March 2018

Ms Carly Clark
Principal Environmental Scientist
COVA Thinking
Level 3, Acacia Place
NOTTING HILL VIC 3168

Dear Ms Clark

REQUEST FOR APPROVAL FOR DISPOSAL OF 152 M^3 OF CONTAMINATED SOIL FROM OATLANDS TO COPPING DISPOSAL SITE

On 15 March 2018, the EPA received an email from COVA Thinking requesting approval to dispose of approximately 152 m^3 of contaminated material, originally from 18 Church Street, Oatlands.

The material is identified by sample ID's "Backfill Sand", "T3 Waste Soil", and Samples prefixed with the letter "B". Analytical results indicate the material to be low level contaminated soil (level 2) Total Petroleum Hydrocarbons C_{10}-C_{36}, or to be odorous. This classification is from the criteria defined in the EPA's *Information Bulletin 105 (IB105): Classification and Management of Contaminated Soil for Disposal, November 2012 Table 2.*

Based on the results provided, the EPA approves disposal of the material at the Copping Waste Depot. Please ensure prior approval is obtained from the waste depot, and note that the waste depot may refuse to take the waste, or require adequate notification to take the waste.

If controlled waste is to be moved off site, the transporter must be registered in accordance with the requirements of the *Environmental Management and Pollution Control (Controlled Waste Tracking) Regulations 2010*. To determine which transporters are suitably approved, please contact the EPA's Waste Transport Officer on (03) 6165 4572.

If you require any further information, please contact Tim Hamilton on (03) 6165 4575.

Yours sincerely

Joe Tranter
SECTION HEAD – WASTE MANAGEMENT

cc. Christine Courtney: sws.finmanager@internode.on.net

Level 7, 134 Macquarie Street, Hobart TAS
GPO Box 1550, Hobart, TAS 7001 Australia

Enquiries: Tim Hamilton
Ph: (03) 6165 4575
Email: tim.hamilton@epa.tas.gov.au
Web: www.epa.tas.gov.au
Our Ref: (EN-EM-WM-WJ-110307_5: H895410) sma

ENVIRONMENT PROTECTION AUTHORITY

3 July 2018

Ms Fiona Keserue-Ponte
Principal Environmental Scientist
COVA
40 Molle Street
HOBART TAS 7000

Dear Ms Keserue-Ponte

APPROVAL FOR DISPOSAL OF 200m^3 OF LOW LEVEL CONTAMINATED SOIL
18 CHURCH STREET OATLANDS TO COPPING B CELL

On 25 June 2018, EPA Tasmania received an application from COVA to dispose of 200m^3 of soil, from 18 Church Street, Oatlands.

Analytical results indicate the material to be low level contaminated material (level 2) for leachable Zinc, Mercury, benzo(a)pyrene and total petroleum hydrocarbons. This classification is from the criteria defined in the EPA's *Information Bulletin 105 (IB105): Classification and Management of Contaminated Soil for Disposal, November 2012 Table 2.*

Based on the results provided, I hereby approve disposal of the material to the B Cell at the Copping Waste Depot. Please ensure prior approval is obtained from the waste depot, and note that the waste depot may refuse to take the material, or require adequate notification to take the material.

If controlled waste is to be moved off site, the transporter must be registered in accordance with the requirements of the Environmental Management and Pollution Control (Controlled Waste Tracking) Regulations 2010. To determine which transporters are suitably approved, please contact the EPA's Waste Transport Officer on (03) 6165 4572

If you require any further information, please contact Tim Hamilton on (03) 6165 4575.

Yours sincerely

Joe Tranter
SECTION HEAD – WASTE MANAGEMENT

cc. Christine Courtney: sws.finmanager@internode.on.net
Fiona Keserue-Ponte: Fiona.Keserue-Ponte@covathinking.com

Level 7, 134 Macquarie Street, Hobart TAS
GPO Box 1550, Hobart, TAS 7001 Australia

Enquiries: Tim Hamilton
Ph: (03) 6165 4575
Email: tim.hamilton@epa.tas.gov.au
Web: www.epa.tas.gov.au
Our Ref: (EN-EM-WM-WJ-110307_5: H970119) sma

ENVIRONMENT PROTECTION AUTHORITY

26 September 2018

Ms Fiona Keserue-Ponte
Principal Environmental Scientist
COVA
40 Molle Street
HOBART TAS 7000

Dear Ms Keserue-Ponte

APPROVAL FOR DISPOSAL OF 6m^3 OF LOW LEVEL CONTAMINATED SOIL
18 CHURCH STREET OATLANDS TO COPPING WASTE DEPOT B CELL

On 21 September 2018, EPA Tasmania received an application from COVA to dispose of 6m^3 of contaminated soil, from 18 Church Street, Oatlands to the Copping Waste Depot B Cell.

Analytical results indicate the material to be low level contaminated material (level 2) for total petroleum hydrocarbons. This classification is from the criteria defined in the EPA's *Information Bulletin 105 (IB105): Classification and Management of Contaminated Soil for Disposal, Version 3 2018, Table 2.*

Based on the results provided, I hereby approve disposal of the material to the B Cell at the Copping Waste Depot. Please ensure prior approval is obtained from the waste depot, and note that the waste depot may refuse to take the material, or require adequate notification to take the material.

If controlled waste is to be moved off site, the transporter must be registered in accordance with the requirements of the *Environmental Management and Pollution Control (Controlled Waste Tracking) Regulations* 2010. To determine which transporters are suitably approved, please contact the EPA's Waste Transport Officer on (03) 6165 4572.

If you require any further information, please contact the officer nominated at the head of this correspondence

Yours sincerely

Joe Tranter
SECTION HEAD – WASTE MANAGEMENT

cc. Christine Courtney: sws.finmanager@internode.on.net
Fiona Keserue-Ponte: Fiona.Keserue-Ponte@covathinking.com

Level 7, 134 Macquarie Street, Hobart TAS
GPO Box 1550, Hobart, TAS 7001 Australia

Enquiries: Tim Hamilton
Ph: (03) 6165 4575
Email: Tim.Hamilton@epa.tas.gov.au
Web: www.epa.tas.gov.au
Our Ref: (EN-EM-WM-WJ-255526: M421562) sma

ENVIRONMENT PROTECTION AUTHORITY

8 March 2019

Ms Christine Bell
Chief Executive Officer
Southern Waste Solutions
swstas@me.com
sws.finmanager@internode.on.net

Dear Ms Bell

ENVIRONMENTAL APPROVAL NO. 10125/1
DISPOSAL OF 90 CUBIC METRES OF CONTAMINATED SOIL FROM OATLANDS INTO THE CATEGORY C CELL

On 14 February 2019 EPA Tasmania received a proposal from Cova Thinking Pty Ltd to dispose of approximately 90 cubic metres of soil with elevated lead levels from a historic blacksmith shop at Church Street in Oatlands.

EPA Tasmania has consulted with you and understands that you consider this material to be suitable for disposal to the Category C Cell. I have taken the proposal and subsequent consultation to be your application for disposal of this material to the Category C Cell.

Based on the information provided, I consider the soil to be suitable for disposal in the Category C Cell. I enclose my authorisation to dispose of approximately 90 cubic metres of contaminated material under Regulation 12 of the *Environmental Management and Pollution Control (Waste Management) Regulations 2010,* subject to conditions. Please find attached Environmental Approval No. 10125/1 containing the conditions to be complied with.

If for any reason you consider the Category C Cell is not appropriate for the disposal of this material you must not proceed with the disposal of this material.

If you require any further information regarding this correspondence, please contact the officer nominated at the head of this correspondence.

Yours sincerely

Darryl Cook
MANAGER ENVIRONMENTAL OPERATIONS SOUTH
Delegate for the Director, Environment Protection Authority

Enc. Environmental Approval No. 10125/1

cc: Fiona Keserue-Ponte: Fiona.Keserue-Ponte@covathinking.com

ENVIRONMENTAL APPROVAL No. 10125/1

Approval under regulation 12 of the *Environmental Management and Pollution Control (Waste Management) Regulations 2010*

I, Darryl Cook, Delegate for the Director, Environment Protection Authority, hereby grant approval in accordance with Regulation 12(3)(a) of the *Environmental Management and Pollution Control (Waste Management) Regulations 2010* for the disposal of the waste material described below provided the following requirements are complied with:

Approval issued to:
COPPING REFUSE DISPOSAL SITE JOINT AUTHORITY trading as SOUTHERN WASTE SOLUTIONS

ABN
87 928 486 460

Waste description and quantity (the waste):
soil containing elevated lead
90 cubic metres

NEPM code and description:
N120: Soils contaminated with a controlled waste

Location (the land):
COPPING REGIONAL WASTE DEPOT, OFF ARTHUR HWY, COPPING TAS 7174

Producer of the waste:
Southern Midlands Council

Period for which approval is valid:
8 March 2019 to 8 August 2019

Requirements:

1. The waste material may only be disposed of to the Category C Cell on the land.

2. Confirmation of disposal of the waste material to the Category C Cell along with details of its origin, mass and key pollutants must be reported to the Director, EPA in a monthly written report.

3. The disposal location of the waste material within the Category C Cell must be recorded and provided to the Director, EPA upon request.

4. Activities relating to the disposal of the waste material must be conducted in such a manner as to prevent environmental nuisance and environmental harm resulting from the escape of the waste material, spillage, or emission of dust or leachate.

5. If an incident causing or threatening environmental nuisance, serious environmental harm, or

DELEGATE FOR THE DIRECTOR, ENVIRONMENT PROTECTION AUTHORITY Date of issue: 08 MAR 2019

material environmental harm from pollution occurs in the course of the disposal of the waste material, then the person responsible for the activity must immediately take all reasonable and practicable action to minimise any adverse environmental effects from the incident.

6. Reasonable and practicable steps must be taken to minimise the potential of this waste to produce leachate containing metals or metalloids. Steps may include depositing the material in part of the cell that is likely to remain dry or where non acidic conditions prevail.

Signed: _____

DELEGATE FOR THE DIRECTOR, ENVIRONMENT PROTECTION AUTHORITY

Date: 08 MAR 2019

12 March 2019

Ms Fiona Keserue-Ponte
Principal Environmental Scientist
Cova Thinking Pty Ltd

By email: Fiona.Keserue-Ponte@covathinking.com

Copy to: WasteManagement@environment.tas.gov.au

Dear Ms Keserue-Ponts

Request for C cell disposal *CC019 – Soils contaminated with a controlled waste*

We refer to your request for disposal to the C cell of *soils contaminated with a controlled waste*. We note that we have received the following:

1. NATA accredited laboratory analytical results
2. Pitt & Sherry agreement to accept (subject to conditions)
3. EPA letter advising their approval (*10125/1 M421562*)
4. EPA approval under regulation 12 (subject to conditions) valid until *8 August 2019*

We are prepared to accept this material subject to *Cova Thinking Pty Ltd* and its agents complying with detailed conditions that will be advised prior to booking delivery dates and times.

Please contact Christine Courtney on 6273 9712 or sws.finmanager@internode.on.net and refer to *CC010* to progress this matter.

Yours sincerely

Christine Bell

C Cell Pty Ltd ABN: 16 433 140 550
PO BOX 216, NEW TOWN, TASMANIA 7008, AUSTRALIA
T: (03) 6273 9712 F: (03) 8669 4064 E: swstas@me.com

SWS ref: B0086

11 November 2019

Andrew Benson
Acting General Manager
Southern Midlands Council
By e-mail:
abenson@southernmidlands.tas.gov.au

Dear Andrew

Notification of acceptance of waste for disposal in B Cell:
B0086 – Approx. 100m^3 Level 1 soil from the racecourse (originally from 18 Church St Oatlands).

We refer to your application for approval to dispose of approximately 100m^3 of soil, originally from 18 Church Street, Oatlands, but currently situated at the racecourse into the B Cell at the Copping landfill.

SWS will accept this waste into the current B Cell.

We require that you contact us at least two working days before transport occurs to arrange a booking, site inductions for drivers and access tags for the landfill weighbridge. Please let us know how many tags you require and when you would like to commence carting the waste.

Please note – SWS now requires that project-specific tags be issued for all B or C Cell contaminated materials - generic tags should no longer be used for access.

Please contact me at the details below referencing B0086 if you have any enquiries.

Yours sincerely,

Christine Courtney
Manager Finance and Compliance

Copping Refuse Disposal Site Joint Authority
trading as ***SOUTHERN WASTE SOLUTIONS***
ABN: 87 928 486 460
PO Box 216 New Town TAS 7008
Phone: (03) 6273 9712 - Fax: (03) 8669 4064 Email: sws.finmanager@internode.on.net

Appendix N – Disposal Documentation

SOUTHERN MIDLANDS COUNCIL

Chronology of Supporting Documentation

to the

Schedule of Disposals and Related Activities

Former SMC Depot Site

To be read in conjunction with the Schedule

June 2019

Leon McGuinness
Building Surveying
ABN: 36 203 905 121

Mobile: 0407 870 090
LMBuild@bigpond.net.au

CERTIFICATE OF FINAL INSPECTION – Demolition Work

Section 202

Workshops – 18 Church Street, Oatlands

Form 69

To: Southern Midlands Council (*Owner /Agent*)
PO Box 21 (*Address*)
OATLANDS 7120 (*Suburb/postcode*)

Building Surveyor details:

Building Surveyor: Leon McGuinness Building Surveying
Address: 7 Jacques Road
GRANTON TAS 7030
Licence No: CC427M
Category: Building Surveyor
Phone No: 0407 870 090
Fax No:
Email address: LMBuild@bigpond.net.au

Builder/Demolisher details:

Builder/Demolisher: Brad Boon
Address: 73 High Street
OATLANDS 7120
Licence No: CC2121X
Category: Builder Low Rise
Phone No: 0400 042 457
Fax No:
Email address: brad.b@centreforheritage.com.au

Permit Authority details:

Permit Authority: Southern Midlands Council
Address: 85 Main Street
KEMPTON TAS 7030
Licence No: N/A
Permit Number: BA 2017/131
Phone No: 03 6259 3011
Fax No: 03 6259 1327
Email address: mail@southernmidlands.tas.gov.au

Details of demolition work:

Address: 18 Church Street
OATLANDS 7120
Lot No: See Below
Certificate of title No: See Below
Type of work: Demolition (*whole or partial demolition/ removal*)
Use of building: Workshops (*main use*) Building class: 7

Titles: 22710/1, 46931/1, 148205/1 and 148207/1

Inspection details:

Notification stages (listed in Certificate of Likely Compliance):	Date of Inspection:	Inspected by:	Comments: (*Include reasons why inspection not carried out and/or details of certificates relied upon if applicable*)
	3/5/18	Building Surveyor	Demolition works completed

I certify that having completed a final inspection of the demolition work, I am satisfied that –

(a) the demolition work is complete;

(b) the work is substantially in compliance with the Certificate of Likely Compliance issued; and

(c) all directions given under the *Building Act 2016* have been complied with.

	Signed:	*Date:*	*Certificate No.*
Building Surveyor		06/05/2018	LMBS 94/17

Northern Fuel Maintenance P/L

ABN: 13 498 264 164 ACN: 009 573 639
Mobile: 0418130324
E-Mail: sales@northernfuel.com
Electrical contractors Lic. No. C00188

28/02/2018

CERTIFICATE OF DISPOSAL

Issued to: Southern Midlands Council
Att: Jack Lyall

For Gas Free, collection, transport and disposal of UST at Southern Midlands Council Council Depot, Oatlands:

1 x 5,000L Underground steel cylindrical Fuel Tank

Yours faithfully,

Greg Page - 0418130324
Northern Fuel Maintenance P/L

Northern Fuel Maintenance P/L

TAX INVOICE / STATEMENT

A.C.N. 009 573 639
A.B.N. 13 498 264 164

PO Box 305
Kings Meadows TAS 7249.Telephone:
(03) 63430844
Fax: (03) 63 446882
Mobile: 0418 130 324
E-Mail: sales@northernfuel.com
Electrical Contractors Lic No. 93063

Invoice #: 00012202

Date : 19/02/2018

Your Order Southern Mid Council

Bill To: Southern Midlands Council

Site Southern Midlands Council
71 High St (PO Box 21)
Oatlands
Tasmania

V04206

QTY.	ITEM NO.	DESCRIPTION	PRICE	UNIT	AMOUNT
1	\c	Quote to remove dis-used underground fuel tank from Council Works Yard and dispose of			
7	HT	TRUCK HIRE to pick up, deliver to Relbia for clean out, Gas free and then transport to Bell Bay scrap steel yard for disposal	$140.00	hour	$980.00
1	HCOMP	COMPRESSOR HIRE 130 cfm	$250.00	p/day	$250.00
1	HAM	JETFLOW AIRMOVER HIRE	$120.00	EACH	$120.00
6	LAB	LABOUR Gas free, clean down tank and wash out internal of tank	$80.00	each	$480.00
300	PM	Disposal of contaminated liquid from wash out of tank	$1.20	each	$360.00
1	\c	Provide Gas Free Certificate for Scrap yard and disposal certificate for Council	$250.00		$250.00

73027.602-8037.02

PAID
08 MAR 2018
BY EFT01685

AUTHORISED FOR PAYMENT BY:
Signature: JLyall
Jack Lyall - Manager
Works & Services Department

2% Interest Charged per month on overdue accounts
Title to the items does not pass from Northern Fuel Maintenance P/L until this account is settled in full
I certify that I have systems in place to ensure that the above mentioned work has been carried out in accordancewith the instillaton and testing requirements of AS/NZS 3000 or ENC C(b) 1 and that I have recorded and retained (as required the documentation prepared by the licensed electrician who certified this work as compliant
GREG PAGE NOMINATED MANAGER

Sale Amount : $2,440.00

GST: $244.00

Total Amount Including GST : $2,684.00

Terms : Valid for 30 Days From Invoice Date

BANK DETAILS
BANK : ANZ BSB:017 539 ACC No. 2700 10698

SOUTHERN MIDLANDS COUNCIL

Telephone Enquiries:
(03) 6254 5000 - Oatlands Office
(03) 6259 3011 - Kempton Office

Facsimile:
(03) 6254 5014 - Oatlands Office
(03) 6259 1327 - Kempton Office

Email:
mail@southernmidlands.tas.gov.au

Correspondence:
71 High Street (PO Box 21) Oatlands, TAS 7120

OFFICIAL ORDER

ABN: 68 653 459 589

Supplier Details

Supplier: NF MAINTENANCE PL

Address: PO Box 305

Date 19 / 2 / 18

Suburb: Kingsmeadows 7249

State: Tas Postcode: Order No. 33170

SMC Supplier Ref: ☐☐☐☐☐☐

Please supply the undermentioned goods and charge same to the Southern Midlands Council

Qty	Description	Unit Cost	Total	Council Costing Council Use Only
	disposal of fuel tank as per			
	Quote No 00012202			
	old Oatlands Depot			

PAID
08 MAR 2018
0685
BY:

Delivery Instructions:

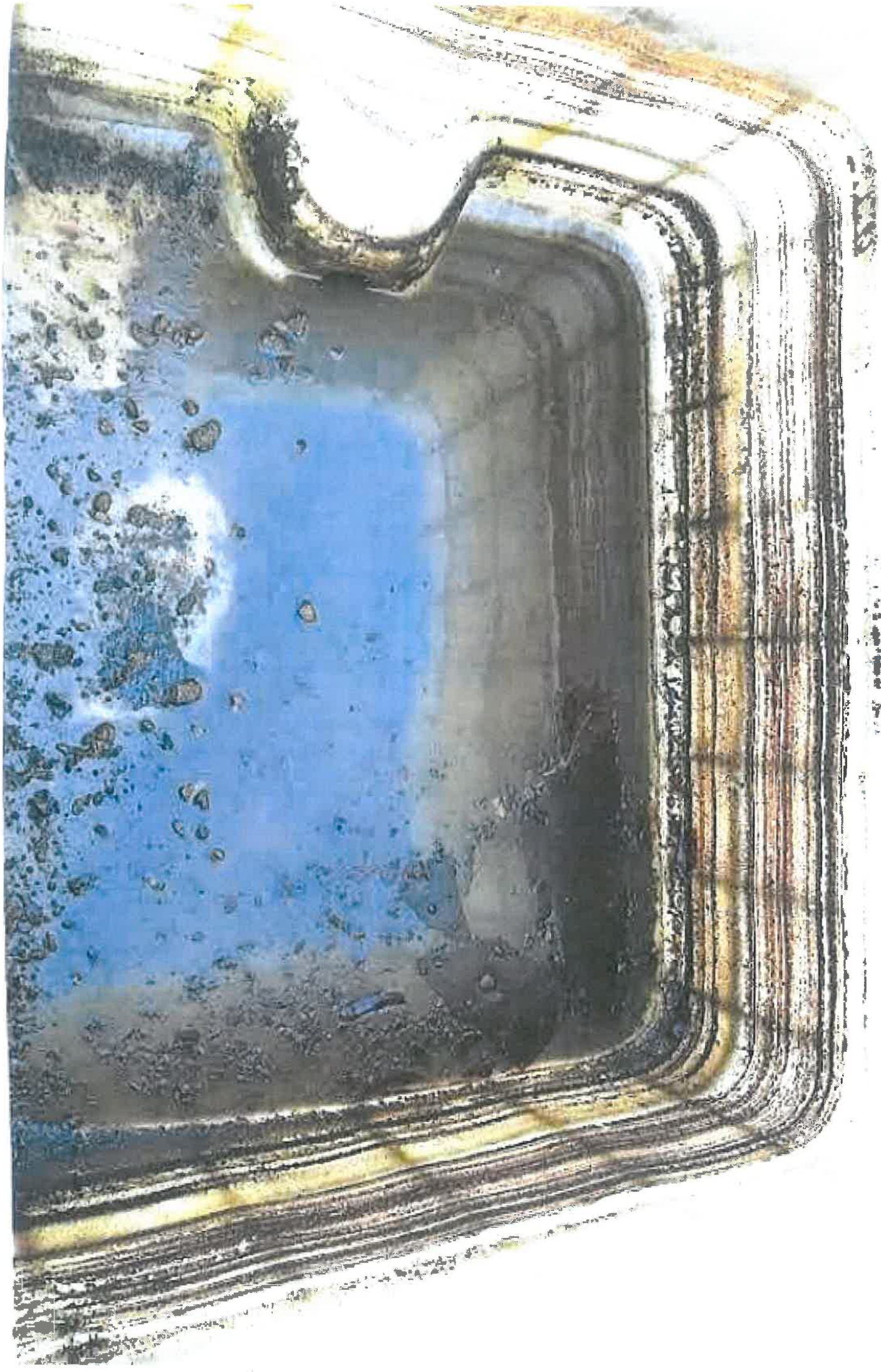
Tick ✓ location where goods are to be delivered

☐ Council Offices 71 High Street, Oatlands 7120
☐ Council Depot 16 Church Street, Oatlands 7120
☐ Council Offices 85 Main Street, Kempton 7030
☐ Council Depot Station Street, Kempton 7030

☐ Other Delivery Instructions:

per J Lyall
General Manager

IMPORTANT: The number on this Order must be quoted on all invoices for goods covered by this Authority.



SOUTHERN MIDLANDS COUNCIL

Telephone Enquiries:
(03) 6254 5000 - Oatlands Office
(03) 6259 3011 - Kempton Office

Facsimile:
(03) 6254 5014 - Oatlands Office
(03) 6259 1327 - Kempton Office

Email:
mail@southernmidlands.tas.gov.au

Correspondence:
71 High Street (PO Box 21) Oatlands, TAS 7120

OFFICIAL ORDER

ABN: 68 653 459 589

Supplier Details

Supplier: Hazell Bros

Address: 14 Farley Street

Date: 10/5/18

Suburb: Derwent Park

State: Tas Postcode: 7009

Order No. 33625

SMC Supplier Ref: ☐☐☐☐☐☐

Please supply the undermentioned goods and charge same to the Southern Midlands Council

Qty	Description	Unit Cost	Total	Council Costing Council Use Only
	cartage of level 2 waste			
	to Lopping – from Oatlands			
	PAID 14 JUN 2018 BY: 0704			

Delivery Instructions:

Tick ✓ location where goods are to be delivered

☐ Council Offices 71 High Street, Oatlands 7120
☐ Council Depot 16 Church Street, Oatlands 7120
☐ Council Offices 85 Main Street, Kempton 7030
☐ Council Depot Station Street, Kempton 7030

☐ Other Delivery Instructions: _____

per _____ **General Manager**

IMPORTANT: The number on this Order must be quoted on all invoices for goods covered by this Authority.

Hazell Bros Group Pty Ltd

Tax Invoice

ABN: 27 088 345 804

8B Lampton Avenue
DERWENT PARK TAS
7009
Phone: 03 6277 7888
Fax: 03 6273 4160

RECEIVED
25 MAY 2018
By SMC

To: SOUTHERN MIDLANDS COUNCIL
PO BOX 21
OATLANDS TAS 7120

Customer No: 1SOUT13

Invoice No: TIP8435
Invoice Date: 14/05/2018
Customer Order No: 33625

WE ARE NOT COMMON CARRIERS - WE DO NOT INSURE - INTEREST CHARGED ON OVERDUE ACCOUNTS

V03951

Date	Docket No	Unit	Description	Qty	Type	Rate	Total
14/05/2018		1VT865	(262008) TRUCK AND TRAILER - CONTAMINATED WASTE - OATLANDS	5.00	Tonnage	140.00	700.00
14/05/2018		1VT1165	(262010) TRUCK AND TRAILER - CONTAMINATED WASTE - OATLANDS	5.00	Tonnage	140.00	700.00
14/05/2018		1VT1194	(262011) TRUCK AND TRAILER - CONTAMINATED WASTE - OATLANDS	5.00	Tonnage	140.00	700.00
	23035.		Cor - C602001 - 91				

AUTHORISED FOR PAYMENT BY:
Signature:
Craig Whatley -
Assistant Works Co-ordinator
Works & Services Department

	Please Pay on invoice	**Sub Total**	**2,100.00**
		GST	**210.00**
		Grand Total	**2,310.00**

Remit To:
Hazell Bros Group Pty Ltd
PO BOX 430
MOONAH TAS 7009

Bank Account:
National Australia Bank
76 Liverpool Street
087 - 007 58-424-5828

Customer No 1SOUT13
Invoice: TIP8435
Grand Total: **2,310.00**

PAID
14 JUN 2018
BY: 01704

Hazell Bros Group Pty Ltd

Tax Invoice

ABN: 27 088 345 804

8B Lampton Avenue
DERWENT PARK TAS
7009
Phone: 03 6277 7888 Fax:
03 6273 4160

To: SOUTHERN MIDLANDS COUNCIL
PO BOX 21
OATLANDS TAS 7120

Customer No: 1SOUT13

Invoice No: TIP8552
Invoice Date: 14/05/2018

Customer Order No: 33769

V0395 1

WE ARE NOT COMMON CARRIERS - WE DO NOT INSURE - INTEREST CHARGED ON OVERDUE ACCOUNTS

Date	Docket No	Unit	Description	Qty	Type	Rate	Total
14/05/2018		SUN101	(266967) COPPING TIP FEES [INCLUDES 10% ADMIN FEE) - NOT PREVIOUSLY CHARGED ON TIP8435	1.00	Tonnage	3,736.81	3,736.81
			(CONTAMINATED SOIL) OLD DEBT				
			23035.602.CC602000 1-911				
			Please Pay on invoice			**Sub Total**	**3,736.81**
						GST	**373.68**
						Grand Total	**4,110.49**

Remit To:
Hazell Bros Group Pty Ltd
PO BOX 430
MOONAH TAS 7009

Bank Account:
National Australia Bank
76 Liverpool Street
087 - 007 58-424-5828

Customer No 1SOUT13
Invoice: TIP8552
Grand Total: 4,110.49

PAID
12 JUL 2018
BY: EFT 0712

AUTHORISED FOR PAYMENT BY:
Signature: J Lyall
Jack Lyall - Manager
Works & Services Department

Southern Waste Solutions

Southern Waste Solutions
PO Box 216
New Town TAS 7008

ABN 87 928 486 460

Email: sws.finmanager@internode.on.net
Office: 03 6273 9712
Fax: 03 8669 4064

Attn Wayne Goss
Hazell Bros Group
PO Box 430
MOONAH TAS 7009

Tax Invoice

Invoice No: **7042**
Invoice Date: 31/05/2018
Order No:
Terms: 14 days
Due Date: 14/06/2018

Description	GST	Amount
Copping gate fees - 29.54t asbestos contaminated waste - May 2018	339.71	3,397.10

Direct Deposit: Southern Waste Solutions
Bank: CBA BSB: 067102 Acc: 1016 9169

- Payment due 14 days or interest charged at 1% per month

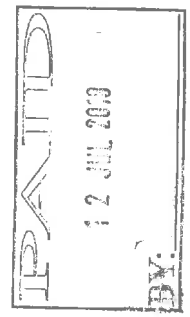
Subtotal:	$3,397.10
GST:	$339.71
Total:	**$3,736.81**

PAID
12 JUL 2018
BY: 01712

Hazell Bros
May 2018
Waste delivered to Copping

Ticket No.	Date-Time Out	Vehicle Desc	Product	Net tonnes	Contractor	Client
72619	14/05/2018 11:21	C 16 ZY	ASBESTOS	29.54	HAZELL BROS GROUP	HAZELL BROS GROUP

GENERAL WASTE	0	$72.00	$0.00
ASBESTOS	29.54	$115.00	$3,397.10
CONTAMINATED SOIL LEVEL 2	0	$115.00	$0.00
	29.54		**$3,397.10**



SOUTHERN MIDLANDS COUNCIL

Telephone Enquiries:
(03) 6254 5000 - Oatlands Office
(03) 6259 3011 - Kempton Office

Facsimile:
(03) 6254 5014 - Oatlands Office
(03) 6259 1327 - Kempton Office

Email:
mail@southernmidlands.tas.gov.au

Correspondence:
71 High Street (PO Box 21) Oatlands, TAS 7120

OFFICIAL ORDER

ABN: 68 653 459 589

Supplier Details

Supplier: Hazell Bros group

Address: P O Box 430

Suburb: Moonah

State: tas Postcode: 7009

Date 4 / 7 / 18

Order No. 33769

SMC Supplier Ref: ☐☐☐☐☐☐

Please supply the undermentioned goods and charge same to the Southern Midlands Council

Qty	Description	Unit Cost	Total	Council Costing Council Use Only
	FEES FOR SPOIL ACCEPTANCE AT			
	COPPING WASTE FACILITY			
	as per Hazell Bros invoice no TIP 8552			
	PAID 12 JUL 2018 BY:			

Delivery Instructions:

Tick ✓ location where goods are to be delivered

❑ Council Offices 71 High Street, Oatlands 7120
❑ Council Depot 16 Church Street, Oatlands 7120
❑ Council Offices 85 Main Street, Kempton 7030
❑ Council Depot Station Street, Kempton 7030

❑ Other Delivery Instructions: _____

per J Lyall
General Manager

IMPORTANT: The number on this Order must be quoted on all invoices for goods covered by this Authority.

Hazell Bros Group Pty Ltd

8B Lampton Avenue
DERWENT PARK TAS
7009
Phone: 03 6277 7888
Fax: 03 6273 4160

Tax Invoice

ABN: 27 088 345 804

RECEIVED
11 DEC 2018
By SMC

To: SOUTHERN MIDLANDS COUNCIL
PO BOX 21
OATLANDS TAS 7120

Customer No: 1SOUT13

Invoice No: TIP9024
Invoice Date: 20/09/2018

Customer Order No: PO 34219

WE ARE NOT COMMON CARRIERS - WE DO NOT INSURE - INTEREST CHARGED ON OVERDUE ACCOUNTS

V03951

Date	Docket No	Unit	Description	Qty	Type	Rate	Total
20/09/2018		1VT1048	(277659) TRUCK AND TRAILER - CONTAMINATED WASTE - COPPING TIP FROM OATLANDS	4.50	Tonnage	140.00	630.00
20/09/2018		1VT1193	(277661) TRUCK AND TRAILER - CONTAMINATED WASTE - COPPING TIP FROM OATLANDS	4.50	Tonnage	140.00	630.00
23035 . 602 . C602.0001. 91							

AUTHORISED FOR PAYMENT BY:
Signature: .....
Craig Whatley -
Assistant Works Co-ordinator
Works & Services Department

PAID
13 DEC 2018
BY: 01754

Please Pay on invoice

Sub Total	**1,260.00**
GST	**126.00**
Grand Total	**1,386.00**

Remit To:
Hazell Bros Group Pty Ltd
PO BOX 430
MOONAH TAS 7009

Bank Account:
National Australia Bank
76 Liverpool Street
087 - 007 58-424-5828

Customer No 1SOUT13
Invoice: TIP9024
Grand Total: **1,386.00**

SOUTHERN MIDLANDS COUNCIL

Telephone Enquiries:
(03) 6254 5000 - Oatlands Office
(03) 6259 3011 - Kempton Office

Facsimile:
(03) 6254 5014 - Oatlands Office
(03) 6259 1327 - Kempton Office

Email:
mail@southernmidlands.tas.gov.au

Correspondence:
71 High Street (PO Box 21) Oatlands, TAS 7120

OFFICIAL ORDER

ABN: 68 653 459 589

Supplier Details

Supplier: Hazell Bros

Address: Lampton Ave

Date: 20 / 9 / 2015

Suburb:

State: tas Postcode:

Order No. 34219

SMC Supplier Ref: ☐☐☐☐☐☐

Please supply the undermentioned goods and charge same to the Southern Midlands Council

Qty	Description	Unit Cost	Total	Council Costing Council Use Only
	cart level tuo waste			
	to bopping fill etc			

Delivery Instructions:

Tick ✓ location where goods are to be delivered

❑ Council Offices 71 High Street, Oatlands 7120
❑ Council Depot 16 Church Street, Oatlands 7120
❑ Council Offices 85 Main Street, Kempton 7030
❑ Council Depot Station Street, Kempton 7030

❑ Other Delivery Instructions:

per

General Manager

IMPORTANT: The number on this Order must be quoted on all invoices for goods covered by this Authority.

SOUTHERN MIDLANDS COUNCIL

Telephone Enquiries:
(03) 6254 5000 - Oatlands Office
(03) 6259 3011 - Kempton Office

Facsimile:
(03) 6254 5014 - Oatlands Office
(03) 6259 1327 - Kempton Office

Email:
mail@southernmidlands.tas.gov.au

Correspondence:
71 High Street (PO Box 21) Oatlands, TAS 7120

OFFICIAL ORDER

ABN: 68 653 459 589

Supplier Details

Supplier: Hazell Bros

Address: Lampton Ave

Date 20/9/2018

Suburb:

State: tas Postcode:

Order No. 34219

SMC Supplier Ref: ☐☐☐☐☐☐

Please supply the undermentioned goods and charge same to the Southern Midlands Council

Qty	Description	Unit Cost	Total	Council Costing Council Use Only
	cart level two waste			
	to lopping			

PAID 28 NOV 2018 BY: EP1017144

PAID 13 DEC 2018 BY: 01754

Delivery Instructions:

Tick ✓ location where goods are to be delivered

❑ Council Offices 71 High Street, Oatlands 7120
❑ Council Depot 16 Church Street, Oatlands 7120
❑ Council Offices 85 Main Street, Kempton 7030
❑ Council Depot Station Street, Kempton 7030

❑ Other Delivery Instructions:

per JSyall
General Manager

IMPORTANT: The number on this Order must be quoted on all invoices for goods covered by this Authority.

Hazell Bros Group Pty Ltd

8B Lampton Avenue
DERWENT PARK TAS
7009
Phone: 03 6277 7888 Fax:
03 6273 4160

Tax Invoice

ABN: 27 088 345 804

RECEIVED
30 OCT 2018
By SMC

To: SOUTHERN MIDLANDS COUNCIL
PO BOX 21
OATLANDS TAS 7120

Customer No: 1SOUT13

Invoice No: TIP8882
Invoice Date: 08/10/2018

Customer Order No: PO 34219

WE ARE NOT COMMON CARRIERS - WE DO NOT INSURE - INTEREST CHARGED ON OVERDUE ACCOUNTS

V03951

Date	Docket No	Unit	Description	Qty	Type	Rate	Total
08/10/2018	T265658	1VT1258	(279672) TRUCK AND TRAILER - CONTAMINATED WASTE - COPPING TIP	3.00	Tonnage	140.00	420.00

602 - C602 0001 - 91

AUTHORISED FOR PAYMENT BY:
Signature: [signature]
Craig Whatley -
Assistant Works Co-ordinator
Works & Services Department

PAID
08 NOV 2018
BY: EFT01744

Please Pay on invoice	**Sub Total**	**420.00**
	GST	**42.00**
	Grand Total	**462.00**

Remit To:
Hazell Bros Group Pty Ltd
PO BOX 430
MOONAH TAS 7009

Bank Account:
National Australia Bank
76 Liverpool Street
087 - 007 58-424-5828

Customer No 1SOUT13
Invoice: TIP8882
Grand Total: **462.00**

Hazell Bros Group Pty Ltd

8B Lampton Avenue
DERWENT PARK TAS
7009
Phone: 03 6277 7888
Fax: 03 6273 4160

Tax Invoice
ABN: 27 088 345 804

RECEIVED
11 DEC 2018
By SMC

To: SOUTHERN MIDLANDS COUNCIL
PO BOX 21
OATLANDS TAS 7120

Invoice No: TIP9027
Invoice Date: 08/10/2018

Customer No: 1SOUT13

Customer Order No: PO 34219

WE ARE NOT COMMON CARRIERS - WE DO NOT INSURE - INTEREST CHARGED ON OVERDUE ACCOUNTS

V03951

Date	Docket No	Unit	Description	Qty	Type	Rate	Total
08/10/2018		1VT1259	(286785) TRUCK AND TRAILER - CONTAMINATED WASTE - COPPING TIP FROM OATLANDS	4.50	Tonnage	140.00	630.00

23035.602.C6020001.91

AUTHORISED FOR PAYMENT BY:
Signature: .....
Craig Whatley -
Assistant Works Co-ordinator
Works & Services Department

PAID
18 DEC 2018
BY: 01754

Please Pay on invoice	**Sub Total**	**630.00**
	GST	**63.00**
	Grand Total	**693.00**

Remit To:
Hazell Bros Group Pty Ltd
PO BOX 430
MOONAH TAS 7009

Bank Account:
National Australia Bank
76 Liverpool Street
087 - 007 58-424-5828

Customer No 1SOUT13
Invoice: TIP9027
Grand Total: **693.00**

Hazell Bros Group Pty Ltd

8B Lampton Avenue
DERWENT PARK TAS
7009
Phone: 03 6277 7888
Fax: 03 6273 4160

Tax Invoice

ABN: 27 088 345 804

RECEIVED
11 DEC 2018
By SMC

To: SOUTHERN MIDLANDS COUNCIL
PO BOX 21
OATLANDS TAS 7120

Customer No: 1SOUT13

Invoice No: TIP9030
Invoice Date: 31/10/2018

Customer Order No: PO 34219

WE ARE NOT COMMON CARRIERS - WE DO NOT INSURE - INTEREST CHARGED ON OVERDUE ACCOUNTS

V03951

Date	Docket No	Unit	Description	Qty	Type	Rate	Total
31/10/2018		1VT1259	(286786) TRUCK AND TRAILER - CONTAMINATED WASTE - COPPING TIP FROM OATLANDS	4.50	Tonnage	140.00	630.00

23035 . 602 . C602 0001 . 91

IP PAID
13 DEC 2018
BY: 07754

AUTHORISED FOR PAYMENT BY:
Signature: .....
Craig Whatley -
Assistant Works Co-ordinator
Works & Services Department

Please Pay on invoice	**Sub Total**	**630.00**
	GST	**63.00**
	Grand Total	**693.00**

Remit To:
Hazell Bros Group Pty Ltd
PO BOX 430
MOONAH TAS 7009

Bank Account:
National Australia Bank
76 Liverpool Street
087 - 007 58-424-5828

Customer No 1SOUT13
Invoice: TIP9030
Grand Total: **693.00**

C Cell Pty Ltd atf C Cell Unit Trust
PO Box 216
New Town TAS 7008

ABN 16 433 140 550

Email: sws.finmanager@internode.on.net
Office: 03 6273 9712
Fax: 03 8669 4064

Southern Midlands Council
71 High Street
OATLANDS TAS 7120

Tax Invoice

Invoice No: 43
Invoice Date: 1/05/2019
Order No: n/a
Terms:
Due Date: 31/05/2019

V04320 -

Description	GST	Amount
Refer C Cell project CC019-SMC Church Street, Oatlands - Gate Fees - L3 soil - 138.18t - refer dockets 81873, 81874, 81908, 81909 - 1/5/2019	5,527.20	55,272.00

23035 . 602 . CC020001 . 91

AUTHORISED FOR PAYMENT BY:
Signature: .....
Bronwyn Porter - Manager
Corporate Services

AUTHORISED FOR PAYMENT BY:
Signature: .....
Timothy Kirkwood
General Manager

AUTHORISED FOR PAYMENT BY:
Signature: .....
Jack Lyall - Manager
Works & Services Department

Direct Deposit: C Cell P/L atf C Cell Unit Trust
Bank: CBA-81 Elizabeth Street, Hobart
BSB: 067000 Acc: 1089 9942
Please e-mail remittance advice to sws.finmanager@internode.on.net

Payment due 30 days or interest charged

Subtotal:	$55,272.00
GST:	$5,527.20
Total:	**$60,799.20**

PAID
16 MAY 2019
BY 0786

AUTHORISED FOR PAYMENT BY:
Signature: .....
Jack Lyall - Manager
Works & Services Department

Southern Midlands Council
1 May 2019
Project CC019 - SMC - Church Street Oatlands - EPA permit 10125/1 dated 8 March 2019
Purchase Order: Not provided

CCell

Ticket No.	Date-Time Out	Vehicle Desc	Product	Net	Contractor	Client
81873	1/05/2019 10:44	CC019B	CCell L3 Soil	36.66	HAZELL BROS GROUP	SOUTHERN MIDLANDS COUNCIL
81874	1/05/2019 10:43	CC019A	CCell L3 Soil	32.08	HAZELL BROS GROUP	SOUTHERN MIDLANDS COUNCIL
81908	1/05/2019 15:25	CC019B	CCell L3 Soil	35.44	HAZELL BROS GROUP	SOUTHERN MIDLANDS COUNCIL
81909	1/05/2019 15:26	CC019A	CCell L3 Soil	34.00	HAZELL BROS GROUP	SOUTHERN MIDLANDS COUNCIL
				138.18		

$400.00 $55,272.00

PAID
EFT 13 MAY 2019
BY: 01786

C CELL - LEVEL 3 WASTE BOOKING FORM

Customer/Waste Generator	**CC019 Southern Midlands Council-Church St, Oatlands** EPA letter ref: M421562 Contact-Jack Lyall SMC - No PO provided.		
Environmental Approval No.	10125/1	**Date.**	8 March 2019 – 8 August 2019
Transporter	Hazell Bros – ref Wayne Goss (0407 864 020 or 6277 7828)		
SWS test analysis results received yes or no & date)	S Le Roux email		15 February 2019
SWS formal acceptance (indicate date & person responsible)	Yes – CEO acceptance letter		12 March 2019
Delivery booking time & date (As per SWS diary entry)	**9:30am**		**Wednesday 1 May 2019**
Time of arrival	10.20 AM		Note - Last load no later that 2pm
Vehicle registration	**CC019a**		
Description of waste/type	Soil containing elevated lead		
Quantity delivered	90 m3 32.08 T / 34.00		
Placement location of waste	Place in the alkaline part of the cell (do not mix with potentially acid forming wastes) to limit lead leaching		
Manual GPS coordinates for waste	AS ATTACHED.		
Cover material for waste	YES.		
Special instructions for waste disposal	Refer placement instructions ✓		
Inbound Weighbridge Docket Number(s) (must be provided by transporter before unloading)	81874 81904 } Refer over.		
EPA paperwork supplied by transporter (indicate yes or no)	YES		
SWS paperwork supplied by transporter (indicate yes or no)	YES		
C Cell Operator signature & date			1-5-19.

PAID
01 MAY 2019
BY: 01186

C Cell Pty Ltd as Trustee for the C Cell Unit Trust
ABN 16 433 [illegible] 970
PO Box 216, NEW TOWN TAS 7008
E-mail: [illegible]@interapplon.net
Phone 03 6277 [illegible] or 0438 231 970

Ph. 03 6273 9712
ABN 87 928 486 460

**** Weigh In Docket ****
Docket Number : 081874
Date/Time : 1/05/2019 10:20:00 AM
Rego : CC019a

WASTE TYPE : CCell L3 Soil

In Weight : 49.90t

Ph. 03 6273 9712
ABN 87 928 486 460

Docket Number : 081874
Date/Time : 01-May-2019 10:43 AM
Rego : CC019A
Account : SOUTHERN MIDLANDS COUNCIL
Contractor : HAZELL BROS GROUP
WasteType : CCell L3 Soil

Weigh In : 17.82t
Weigh Out : 49.90t
Net Weight: 32.08t

Ph. 03 6273 9712
ABN 87 928 486 460

**** Weigh In Docket ****
Docket Number : 081909
Date/Time : 1/05/2019 2:53:00 PM
Rego : CC019a

WASTE TYPE : CCell L3 Soil

In Weight : 51.72t

PAID
GST
1 C MAY 2019
BY: 01786

Ph. 03 6273 9712
ABN 87 928 486 460

Docket Number : 081909
Date/Time : 01-May-2019 03:26 PM
Rego : CC019A
Account : SOUTHERN MIDLANDS COUNCIL
Contractor : HAZELL BROS GROUP
WasteType : CCell L3 Soil

Weigh In : 17.72t
Weigh Out : 51.72t
Net Weight: 34.00t

CC019

Level 7, 134 Macquarie Street, Hobart TAS
GPO Box 1550, Hobart, TAS 7001 Australia

Enquiries: Tim Hamilton
Ph: (03) 6165 4575
Email: Tim.Hamilton@epa.tas.gov.au
Web: www.epa.tas.gov.au
Our Ref: (EN-EM-WM-WJ-255526: M421562) sma

ENVIRONMENT PROTECTION AUTHORITY

8 March 2019

Ms Christine Bell
Chief Executive Officer
Southern Waste Solutions
swstas@me.com
sws.finmanager@internode.on.net

Dear Ms Bell

ENVIRONMENTAL APPROVAL NO. 10125/1
DISPOSAL OF 90 CUBIC METRES OF CONTAMINATED SOIL FROM OATLANDS INTO THE CATEGORY C CELL

On 14 February 2019 EPA Tasmania received a proposal from Cova Thinking Pty Ltd to dispose of approximately 90 cubic metres of soil with elevated lead levels from a historic blacksmith shop at Church Street in Oatlands.

EPA Tasmania has consulted with you and understands that you consider this material to be suitable for disposal to the Category C Cell. I have taken the proposal and subsequent consultation to be your application for disposal of this material to the Category C Cell.

Based on the information provided, I consider the soil to be suitable for disposal in the Category C Cell. I enclose my authorisation to dispose of approximately 90 cubic metres of contaminated material under Regulation 12 of the *Environmental Management and Pollution Control (Waste Management) Regulations 2010*, subject to conditions. Please find attached Environmental Approval No. 10125/1 containing the conditions to be complied with.

If for any reason you consider the Category C Cell is not appropriate for the disposal of this material you must not proceed with the disposal of this material.

If you require any further information regarding this correspondence, please contact the officer nominated at the head of this correspondence.

Yours sincerely

Darryl Cook
MANAGER ENVIRONMENTAL OPERATIONS SOUTH
Delegate for the Director, Environment Protection Authority

Enc. Environmental Approval No. 10125/1

cc: Fiona Keserue-Ponte: Fiona.Keserue-Ponte@covathinking.com

ENVIRONMENTAL APPROVAL No. 10125/1

Approval under regulation 12 of the *Environmental Management and Pollution Control (Waste Management) Regulations 2010*

I, Darryl Cook, Delegate for the Director, Environment Protection Authority, hereby grant approval in accordance with Regulation 12(3)(a) of the *Environmental Management and Pollution Control (Waste Management) Regulations 2010* for the disposal of the waste material described below provided the following requirements are complied with:

Approval issued to:
COPPING REFUSE DISPOSAL SITE JOINT AUTHORITY trading as SOUTHERN WASTE SOLUTIONS

ABN
87 928 486 460

Waste description and quantity (the waste):
soil containing elevated lead
90 cubic metres

NEPM code and description:
N120: Soils contaminated with a controlled waste

Location (the land):
COPPING REGIONAL WASTE DEPOT, OFF ARTHUR HWY, COPPING TAS 7174

Producer of the waste:
Southern Midlands Council

Period for which approval is valid:
8 March 2019 to 8 August 2019

Requirements:

1. The waste material may only be disposed of to the Category C Cell on the land.

2. Confirmation of disposal of the waste material to the Category C Cell along with details of its origin, mass and key pollutants must be reported to the Director, EPA in a monthly written report.

3. The disposal location of the waste material within the Category C Cell must be recorded and provided to the Director, EPA upon request.

4. Activities relating to the disposal of the waste material must be conducted in such a manner as to prevent environmental nuisance and environmental harm resulting from the escape of the waste material, spillage, or emission of dust or leachate.

5. If an incident causing or threatening environmental nuisance, serious environmental harm, or

DELEGATE FOR THE DIRECTOR, ENVIRONMENT PROTECTION AUTHORITY

Date of issue: 08 MAR 2019

material environmental harm from pollution occurs in the course of the disposal of the waste material, then the person responsible for the activity must immediately take all reasonable and practicable action to minimise any adverse environmental effects from the incident.

6. Reasonable and practicable steps must be taken to minimise the potential of this waste to produce leachate containing metals or metalloids. Steps may include depositing the material in part of the cell that is likely to remain dry or where non acidic conditions prevail.

Signed: _____

DELEGATE FOR THE DIRECTOR, ENVIRONMENT PROTECTION AUTHORITY

Date: 08 MAR 2019

Christine Courtney

From: Miller, Tammy (EPA) <Tammy.Miller@epa.tas.gov.au>
Sent: Friday, 8 March 2019 11:31 AM
To: Southern Waste Solutions; Christine Courtney
Cc: Fiona.Keserue-Ponte@covathinking.com
Subject: Disposal of 90m3 of contaminated soil from Oatlands - Environmental Approval 10125/1
Attachments: 20190308095705137.pdf; 20190308095721324.pdf

Please find attached correspondence in relation to a disposal request for 90m3 of contaminated soil from Oatlands.

Regards

Tammy

****

Tammy Miller - Data Management Officer
Waste Management Section
EPA Division
Department of Primary Industries, Parks, Water and Environment 7th Floor, Lands Building, 134 Macquarie Street, Hobart 7000

GPO Box 1751, HOBART 7001

Email: Tammy.Miller@epa.tas.gov.au
Phone: 03 6165 4594
Web: http://epa.tas.gov.au/epa

Christine Courtney

From: Wayne Goss <Wayne.Goss@hazellbros.com.au>
Sent: Friday, 26 April 2019 8:37 AM
To: 'Barker Mick'; Christine Courtney
Subject: Southern Midlands Council

Hi Mark,

Southern Midlands Council have asked us to move material from Oatlands on Tuesday, If possible could you arrange fobs and I will collect on Monday

Regards

Wayne Goss
Mobile Assets Manager
Hazell Bros
M 0407 864 020 P 03 6277 7828
14 Farley Street,
Derwent Park, TAS, 7009
www.hazellbros.com.au

C CELL - LEVEL 3 WASTE BOOKING FORM

Customer/Waste Generator	**CC019-Southern Midlands Council-Church St, Oatlands** EPA letter ref: M421562 Contact-Jack Lyall SMC - No PO provided.		
Environmental Approval No.	10125/1	**Date.**	8 March 2019 – 8 August 2019
Transporter	Hazell Bros – ref Wayne Goss (0407 864 020 or 6277 7828)		
SWS test analysis results received yes or no & date)	S Le Roux email		15 February 2019
SWS formal acceptance (indicate date & person responsible)	Yes – CEO acceptance letter		12 March 2019
Delivery booking time & date (As per SWS diary entry)	**9:30am**		**Wednesday 1 May 2019**
Time of arrival	10.46		Note - Last load no later that 2pm
Vehicle registration	**CC019b**		
Description of waste/type	Soil containing elevated lead		
Quantity delivered	90 m3 36.66T / 35.44		
Placement location of waste	Place in the alkaline part of the cell (do not mix with potentially acid forming wastes) to limit lead leaching		
Manual GPS coordinates for waste	AS ATTACHED		
Cover material for waste	YES.		
Special instructions for waste disposal	Refer placement instructions ✓		
Inbound Weighbridge Docket Number(s) (must be provided by transporter before unloading)	81873. 81908		
EPA paperwork supplied by transporter (indicate yes or no)	YES		
SWS paperwork supplied by transporter (indicate yes or no)	YES		
C Cell Operator signature & date	Gfrench		1-5-19

C Cell Pty Ltd as Trustee for the C Cell Unit Trust
ABN 35 438 140 330
PO Box 153, NEW TOWN TAS 7008
Email: swsmanager@ccell.com.au
Phone 03 6278 0110 or 0418 331 973

Ph. 03 6273 9712
ABN 87 928 486 460

**** Weigh In Docket ****
Docket Number : 081873
Date/Time : 1/05/2019 10:18:00 AM
Rego : CC019b

WASTE TYPE : CCell L3 Soil

In Weight : 54.52t

Ph. 03 6273 9712
ABN 87 928 486 460

)ocket Number : 081873
)ate/Time : 01-May-2019 10:44 AM
?ego : CC019B
\ccount : SOUTHERN MIDLANDS COUNCIL
:ontractor : HAZELL BROS GROUP
/asteType : CCell L3 Soil

/eigh In : 17.86t
/eigh Out : 54.52t
/et Weight: 36.66t

Ph. 03 6273 9712
ABN 87 928 486 460

**** Weigh In Docket ****
Docket Number : 081908
Date/Time : 1/05/2019 2:51:00 PM
Rego : CC019b

WASTE TYPE : CCell L3 Soil

In Weight : 53.20t

Ph. 03 6273 9712
ABN 87 928 486 460

)ocket Number : 081908
)ate/Time : 01-May-2019 03:25 PM
?ego : CC019B
\ccount : SOUTHERN MIDLANDS COUNCIL
:ontractor : HAZELL BROS GROUP
/asteType : CCell L3 Soil

/eigh In : 17.76t
/eigh Out : 53.20t
/et Weight: 35.44t

CC019

Level 7, 134 Macquarie Street, Hobart TAS
GPO Box 1550, Hobart, TAS 7001 Australia

Enquiries: Tim Hamilton
Ph: (03) 6165 4575
Email: Tim.Hamilton@epa.tas.gov.au
Web: www.epa.tas.gov.au
Our Ref: (EN-EM-WM-WJ-255526: M421562) sma

ENVIRONMENT PROTECTION AUTHORITY

8 March 2019

Ms Christine Bell
Chief Executive Officer
Southern Waste Solutions
swstas@me.com
sws.finmanager@internode.on.net

Dear Ms Bell

ENVIRONMENTAL APPROVAL NO. 10125/1
DISPOSAL OF 90 CUBIC METRES OF CONTAMINATED SOIL FROM OATLANDS INTO THE CATEGORY C CELL

On 14 February 2019 EPA Tasmania received a proposal from Cova Thinking Pty Ltd to dispose of approximately 90 cubic metres of soil with elevated lead levels from a historic blacksmith shop at Church Street in Oatlands.

EPA Tasmania has consulted with you and understands that you consider this material to be suitable for disposal to the Category C Cell. I have taken the proposal and subsequent consultation to be your application for disposal of this material to the Category C Cell.

Based on the information provided, I consider the soil to be suitable for disposal in the Category C Cell. I enclose my authorisation to dispose of approximately 90 cubic metres of contaminated material under Regulation 12 of the *Environmental Management and Pollution Control (Waste Management) Regulations 2010*, subject to conditions. Please find attached Environmental Approval No. 10125/1 containing the conditions to be complied with.

If for any reason you consider the Category C Cell is not appropriate for the disposal of this material you must not proceed with the disposal of this material.

If you require any further information regarding this correspondence, please contact the officer nominated at the head of this correspondence.

Yours sincerely

Darryl Cook
MANAGER ENVIRONMENTAL OPERATIONS SOUTH
Delegate for the Director, Environment Protection Authority

Enc. Environmental Approval No. 10125/1

cc: Fiona Keserue-Ponte: Fiona.Keserue-Ponte@covathinking.com

ENVIRONMENTAL APPROVAL No. 10125/1

Approval under regulation 12 of the *Environmental Management and Pollution Control (Waste Management) Regulations 2010*

I, Darryl Cook, Delegate for the Director, Environment Protection Authority, hereby grant approval in accordance with Regulation 12(3)(a) of the *Environmental Management and Pollution Control (Waste Management) Regulations 2010* for the disposal of the waste material described below provided the following requirements are complied with:

Approval issued to:
COPPING REFUSE DISPOSAL SITE JOINT AUTHORITY trading as SOUTHERN WASTE SOLUTIONS

ABN
87 928 486 460

Waste description and quantity (the waste):
soil containing elevated lead
90 cubic metres

NEPM code and description:
N120: Soils contaminated with a controlled waste

Location (the land):
COPPING REGIONAL WASTE DEPOT, OFF ARTHUR HWY, COPPING TAS 7174

Producer of the waste:
Southern Midlands Council

Period for which approval is valid:
8 March 2019 to 8 August 2019

Requirements:

1. The waste material may only be disposed of to the Category C Cell on the land.

2. Confirmation of disposal of the waste material to the Category C Cell along with details of its origin, mass and key pollutants must be reported to the Director, EPA in a monthly written report.

3. The disposal location of the waste material within the Category C Cell must be recorded and provided to the Director, EPA upon request.

4. Activities relating to the disposal of the waste material must be conducted in such a manner as to prevent environmental nuisance and environmental harm resulting from the escape of the waste material, spillage, or emission of dust or leachate.

5. If an incident causing or threatening environmental nuisance, serious environmental harm, or

DELEGATE FOR THE DIRECTOR, ENVIRONMENT PROTECTION AUTHORITY

Date of issue: 08 MAR 2019

material environmental harm from pollution occurs in the course of the disposal of the waste material, then the person responsible for the activity must immediately take all reasonable and practicable action to minimise any adverse environmental effects from the incident.

6. Reasonable and practicable steps must be taken to minimise the potential of this waste to produce leachate containing metals or metalloids. Steps may include depositing the material in part of the cell that is likely to remain dry or where non acidic conditions prevail.

Signed: _____

DELEGATE FOR THE DIRECTOR, ENVIRONMENT PROTECTION AUTHORITY

Date: 08 MAR 2019

Christine Courtney

From: Miller, Tammy (EPA) <Tammy.Miller@epa.tas.gov.au>
Sent: Friday, 8 March 2019 11:31 AM
To: Southern Waste Solutions; Christine Courtney
Cc: Fiona.Keserue-Ponte@covathinking.com
Subject: Disposal of 90m3 of contaminated soil from Oatlands - Environmental Approval 10125/1
Attachments: 20190308095705137.pdf; 20190308095721324.pdf

Please find attached correspondence in relation to a disposal request for 90m3 of contaminated soil from Oatlands.

Regards

Tammy

****

Tammy Miller - Data Management Officer
Waste Management Section
EPA Division
Department of Primary Industries, Parks, Water and Environment 7th Floor, Lands Building, 134 Macquarie Street, Hobart 7000

GPO Box 1751, HOBART 7001

Email: Tammy.Miller@epa.tas.gov.au
Phone: 03 6165 4594
Web: http://epa.tas.gov.au/epa

Christine Courtney

From: Wayne Goss <Wayne.Goss@hazellbros.com.au>
Sent: Friday, 26 April 2019 8:37 AM
To: 'Barker Mick'; Christine Courtney
Subject: Southern Midlands Council

Hi Mark,

Southern Midlands Council have asked us to move material from Oatlands on Tuesday, If possible could you arrange fobs and I will collect on Monday

Regards

Wayne Goss
Mobile Assets Manager
Hazell Bros
M 0407 864 020 P 03 6277 7828
14 Farley Street,
Derwent Park, TAS, 7009
www.hazellbros.com.au

Hazell Bros Group Pty Ltd

8B Lampton Avenue
DERWENT PARK TAS
7009
Phone: 03 6277 7888
Fax: 03 6273 4160

Tax Invoice

ABN: 27 088 345 804

RECEIVED
- 9 MAY 2019
By SMC

To: SOUTHERN MIDLANDS COUNCIL
PO BOX 21
OATLANDS TAS 7120

Customer No: 1SOUT13

Invoice No: TIP9482
Invoice Date: 01/05/2019

Customer Order No:

V039S1

WE ARE NOT COMMON CARRIERS - WE DO NOT INSURE - INTEREST CHARGED ON OVERDUE ACCOUNTS

Date	Docket No	Unit	Description	Qty	Type	Rate	Total
01/05/2019	T267552	1VT1258	(302083) TRUCK AND TRAILER - CONTAMINATED WASTE - COPPING TIP	9.00	Tonnage	140.00	1,260.00
01/05/2019	T271094	1VT1257	(302084) TRUCK AND TRAILER - CONTAMINATED WASTE - COPPING TIP	10.00	Tonnage	140.00	1,400.00
		OVERTIME	OVERTIME	1.00	Overtime	20.00	20.00

23035 . 602 . C602Q001 . 91 .

Please Pay on invoice

Sub Total	**2,680.00**
GST	**268.00**
Grand Total	**2,948.00**

AUTHORISED FOR PAYMENT BY:
Signature: .....
Jack Lyall - Manager
Works & Services Department

Remit To:
Hazell Bros Group Pty Ltd
PO BOX 430
MOONAH TAS 7009

Bank Account:
National Australia Bank
76 Liverpool Street
087 - 007 58-424-5828

Customer No 1SOUT13
Invoice: TIP9482
Grand Total: **2,948.00**

PAID
16 MAY 2019
BY: 101786

hazellbros

P.O. Box 430
MOONAH 7009
Telephone: (03) 6277 7888
Facsimile: (03) 6273 4028

DOCKET

ORDER NO.

T 271094

DATE 1 15 120

TRANSPORT · HEAVY HAULAGE · TIPPERS

Hirer: Southern Midlands Council

A/c Address:

Job Location: Oatlands - capping Tip

Details: Contaminated soil

MINIMUM 2 HOURS WEEKDAYS · 4 HOURS WEEKENDS

DESCRIPTION	RATE	AMOUNT
Hourly Hire 10 t @		
Standby @		
Tonnage 32.08 34.00		
Start Time: / Finish Time:		
Disposal Fees — Yes ☐ No. of Loads / No ☐ No. of Loads		
	TOTAL	**$**

Customer's Signature:

Driver: C Neal Truck Unit No: 257 Trailer No: 234

PLEASE READ CONDITIONS OF CONTRACT ON REVERSE

CUSTOMER - WHITE · INVOICE - PINK · SUBCONTRACTOR - YELLOW

Ph. 03 6273 9712
ABN 87 928 486 460

Docket Number : 081909
Date/Time : 01-May-2019 03:26 PM
Rego : CC019A
Account : SOUTHERN MIDLANDS COUNCIL
Contractor : HAZELL BROS GROUP
WasteType : CCell L3 Soil

Weigh In : 17.72t
Weigh Out : 51.72t
Net Weight: 34.00t

hazellbros

P.O. Box 430
MOONAH 7009
Telephone: (03) 6277 7888
Facsimile: (03) 6273 4028

DOCKET

ORDER NO.

TRANSPORT · HEAVY HAULAGE · TIPPERS

T267552

Hirer:

A/c Address:

DATE 1/5/19

Job Location: OATLANDS

Details: CONTAMINATED SOIL TO COMING

MINIMUM 2 HOURS WEEKDAYS · 4 HOURS WEEKENDS

DESCRIPTION	RATE	AMOUNT
Hourly Hire @		
Standby @	.5	
Tonnage		
Start Time: 6:30 Finish Time: 4pm	9 HRS	
Yes ☐ No. of Loads Disposal Fees No ☐ No. of Loads		
	TOTAL	$

Customer's Signature:

Driver: BEN Truck Unit No: 1256 Trailer No: 333

PLEASE READ CONDITIONS OF CONTRACT ON REVERSE

CUSTOMER - WHITE · INVOICE - PINK · SUBCONTRACTOR - YELLOW

Ph. 03 6273 9712
ABN 87 928 486 460

Docket Number : 081874
Date/Time : 01-May-2019 10:43 AM
Depo : CCD19A
Account : SOUTHERN MIDLANDS COUNCIL
Contractor : HAZELL BROS GROUP
WasteType : CCell L3 Soil

Weigh In : 17.82t
Weigh Out : 49.90t
Net Weight: 32.08t

SOUTHERN MIDLANDS COUNCIL

Telephone Enquiries:
(03) 6254 5000 - Oatlands Office
(03) 6259 3011 - Kempton Office

Facsimile:
(03) 6254 5014 - Oatlands Office
(03) 6259 1327 - Kempton Office

Email:
mail@southernmidlands.tas.gov.au

Correspondence:
71 High Street (PO Box 21) Oatlands, TAS 7120

OFFICIAL ORDER

ABN: 68 653 459 589

Supplier Details

Supplier: C CELL PTY LTD

Address: P O Box 216

Date: 10/5/19

Suburb: NEW TOWN

State: TAS Postcode: 7008

Order No. 35101

SMC Supplier Ref: ☐☐☐☐☐☐

Please supply the undermentioned goods and charge same to the Southern Midlands Council

Qty	Description	Unit Cost	Total	Council Costing Council Use Only
	waste gate fees			
	as per invoice № 43			
			$60,799.20	
	PAID 10 MAY 2019 BY: 01786			

Delivery Instructions:

Tick ✓ location where goods are to be delivered

❑ Council Offices 71 High Street, Oatlands 7120
❑ Council Depot 16 Church Street, Oatlands 7120
❑ Council Offices 85 Main Street, Kempton 7030
❑ Council Depot Station Street, Kempton 7030

❑ Other Delivery Instructions:

per J Lyall
General Manager

IMPORTANT: The number on this Order must be quoted on all invoices for goods covered by this Authority.

SOUTHERN MIDLANDS COUNCIL

Telephone Enquiries:
(03) 6254 5000 - Oatlands Office
(03) 6259 3011 - Kempton Office

Facsimile:
(03) 6254 5014 - Oatlands Office
(03) 6259 1327 - Kempton Office

Email:
mail@southernmidlands.tas.gov.au

Correspondence:
71 High Street (PO Box 21) Oatlands, TAS 7120

OFFICIAL ORDER

ABN: 68 653 459 589

Supplier Details

Supplier: Hazell Bros group Pty LTD

Address: 88 Lampton Ave

Date: 10/5/19

Suburb: Derwent park

State: tas Postcode: 7009

Order No. 35102

SMC Supplier Ref: ☐☐☐☐☐☐

Please supply the undermentioned goods and charge same to the Southern Midlands Council

Qty	Description	Unit Cost	Total	Council Costing Council Use Only
	transport of waste to C Cell at tapping from Oatlands Pool Site as per tridocia N° TIP9482			
	PAID 16 MAY 2019 BY: 01786			

Delivery Instructions:

Tick ✓ location where goods are to be delivered

❑ Council Offices 71 High Street, Oatlands 7120
❑ Council Depot 16 Church Street, Oatlands 7120
❑ Council Offices 85 Main Street, Kempton 7030
❑ Council Depot Station Street, Kempton 7030

❑ Other Delivery Instructions:

per J Lyall
General Manager

IMPORTANT: The number on this Order must be quoted on all invoices for goods covered by this Authority.

TAX INVOICE

Southern Midlands Council
85 Main St, Southern, Kempton
KEMPTON TAS 7030
AUSTRALIA
ABN: 68653459589

Invoice Date
14 Jun 2019

Invoice Number
INV-11988

Reference
35128

ABN
21 083 514 041

State-wide Earthworks Pty Ltd
52 Atkins Rd
GRANTON TAS 7030
AUSTRALIA

Description	Quantity	Unit Price	GST	Amount AUD
supply 2 man asbestos crew to remove FC pipes from Southern midlands council Pool site requested by Jack Lyell. Works completed on 13/6/19	4.00	180.00	10%	720.00
Tip fee's for the FC to accredited dump site	1.00	500.00	10%	500.00
Supply small truck to transport FC pipping	1.00	150.00	10%	150.00
			Subtotal	1,370.00
			TOTAL GST 10%	137.00
			TOTAL AUD	**1,507.00**

AUTHORISED FOR PAYMENT BY

Signature
Andrew Benson
Deputy General Manager
Manager Community & Corporate Development

Due Date: 14 Jul 2019
DIRECT DEPOSIT
ANZ
BSB: 017-209
Acc: 497231102

This is a payment claim made under the Building and Construction Industry Security of Payment Act 2009.

PAYMENT ADVICE

Customer	Southern Midlands Council
Invoice Number	INV-11988
Amount Due	**1,507.00**
Due Date	14 Jul 2019
Amount Enclosed	

Enter the amount you are paying above

To: State-wide Earthworks Pty Ltd
52 Atkins Rd
GRANTON TAS 7030
AUSTRALIA

STATE-WIDE EARTHWORKS PTY LTD

ASBESTOS CLEARANCE CERTIFICATE

CLEARANCE INSPECTION DETAILS

Note: Must be completed where bonded asbestos removal work <10 square metres has been undertaken. The Asbestos removal supervisor must carry out the clearance inspection and complete this clearance certificate if satisfied that the area is safe to reoccupy.

Client details	
Customer name:	Souhern Midlands Council
Representative of customer:	Jack Lyell
Removal work details	
Date removal work carried out:	13/6/19
Site address where removal work carried out:	Poolsite
Details of the specific asbestos removal work area(s):	FC pipping
Name of asbestos removalist:	Jason Daniels
Name and contact details of asbestos removalist supervisor :	Tristan Triffett – 0427 950 662
Inspection details	
Date of clearance inspection:	13/6/19
Time of clearance inspection:	3.45pm

ASBESTOS REMOVAL WORK AREA

1. Visual Inspection	**Yes**	**No**
Inspection of the specific work area found no visible asbestos remaining as a result of the asbestos removal work carried out.		Area clear
Was air monitoring required (if no, proceed to Section 3)		N/A
Can the area be reoccupied?		

SOUTHERN MIDLANDS COUNCIL

Telephone Enquiries:
(03) 6254 5000 - Oatlands Office
(03) 6259 3011 - Kempton Office

Facsimile:
(03) 6254 5014 - Oatlands Office
(03) 6259 1327 - Kempton Office

Email:
mail@southernmidlands.tas.gov.au

Correspondence:
71 High Street (PO Box 21) Oatlands, TAS 7120

OFFICIAL ORDER

ABN: 68 653 459 589

Supplier Details

Supplier: Statewide Earthworks

Address: 55 Crockett Billett Drive

Suburb: Bridgewater

State: Tas Postcode: 7030

Date 13/6/19

Order No. 35128

SMC Supplier Ref: ☐☐☐☐☐☐

Please supply the undermentioned goods and charge same to the Southern Midlands Council

Qty	Description	Unit Cost	Total	Council Costing Council Use Only
	Removal of asbestos material from Pool Site			

Delivery Instructions:

Tick ✓ location where goods are to be delivered

☐ Council Offices 71 High Street, Oatlands 7120
☐ Council Depot 16 Church Street, Oatlands 7120
☐ Council Offices 85 Main Street, Kempton 7030
☐ Council Depot Station Street, Kempton 7030

☐ Other Delivery Instructions: _____

per J Lyall
General Manager

IMPORTANT: The number on this Order must be quoted on all invoices for goods covered by this Authority.

SOUTHERN MIDLANDS COUNCIL

Document A2

Additional Information

Chronology of Supporting Documentation

to the

Schedule of Disposals and Related Activities

Former SMC Depot Site

To be read in conjunction with the Schedule

August 2019

VEOLIA
ENVIRONMENTAL SERVICES

Veolia Environmental Services
ABN 20 051 316 584
PO Box 431 ROSNY TAS 7018
Phone : 03 6244 0000
Fax : 03 6244 0055

RECEIVED
1 JUN 2018
By SMC

SOUTHERN MIDLANDS COUNCIL
PO BOX 21
OATLANDS TAS 7120

TAX invoice No : 2700924914
CA Number : 7003874
Account Number : 70003935
Date : 27/05/2018
Page : 1 /2

ACCOUNT ENQUIRIES
Phone : 03 6244 0080 Fax : 03 6244 0085
Email : accounts.receivable.tas@veolia.com.au

PAYMENT CONTACT DETAILS
Fax: 03 6277 5199
Email: remittance.tas@veolia.com.au

Site Number: 70046761
SOUTHERN MIDLANDS COUNCIL
Council Depot, OATLANDS TAS 7120

73027.602.6039.02

Reference	Date	Description	Docket No	Qty	Uom	Rate	Ex GST	GST	Total
700100774		1 X 3M3 FRONTLIFT GENERAL							
		Total Collections 12 M3							
944876531	01/05/18	1 Collection		3.000	M3	22.00	66.00	6.60	72.60
944978467	08/05/18	1 Collection		3.000	M3	22.00	66.00	6.60	72.60
945088723	15/05/18	1 Collection		3.000	M3	22.00	66.00	6.60	72.60
945214873	22/05/18	1 Collection		3.000	M3	22.00	66.00	6.60	72.60
700100774	27/05/18	Site Charge Frontlift		1.000	EA	18.00	18.00	1.80	19.80
		602 - 6039 - 02							
700146403		10M3 HOOK GENERAL - SOIL STORAGE							
944908639	02/05/18	Disposal	72383	6.660	TO	138.00	919.08	91.91	1,010.99
		Tip And Return	74523	1.000	EA	520.00	520.00	52.00	572.00
944935217	03/05/18	Disposal	72413	11.800	TO	138.00	1,628.40	162.84	1,791.24
		Removal	74719	1.000	EA	520.00	520.00	52.00	572.00
700146403	27/05/18	Site Charge Bulk		1.000	EA	85.00	48.57	4.86	53.43
		602 - C602 0001 - 91							
00146404		10M3 HOOK GENERAL - SOIL STORAGE							
944908638	02/05/18	Disposal	72395	6.680	TO	138.00	921.84	92.18	1,014.02
		Tip And Return	74523	1.000	EA	520.00	520.00	52.00	572.00
945073440	14/05/18	Disposal	72627	10.160	TO	138.00	1,402.08	140.21	1,542.29

Continued Overleaf

Credit Claims must be received in writing within 21 days of this invoice

PAYMENT OPTIONS

PLEASE DETACH AND RETURN WITH YOUR PAYMENT

DIRECT DEBIT
For direct debit, please call 03 6244 0080

EFT PAYMENTS remit to
BSB : 342-312
Bank Account No: 023682007
Please forward remittance advice to
Email: remittance.tas@veolia.com.au
Fax: 03 6277 5199

CHEQUE
For cheque payment, please send your cheque with this slip made payable to Veolia Environmental Services, GPO BOX 3940, SYDNEY NSW 2001

AUTHORISED FOR PAYMENT
Signature:
Craig Whatley -
Assistant Works Co-ordinator
Works & Services Department

CREDIT CARD*
For Credit Card payment please call 03 6244 0080 with your Visa or MasterCard details.
A transaction fee of 1.40 % incl. GST will apply on payments made by Visa/MasterCard

BPAY
Biller Code: 216648
Reference: 700 039 357
Contact your participating financial institution to make this payment using your bank account

INVOICE NUMBER	2700924914
ACCOUNT NUMBER	70003935
PAYABLE BY	10/06/2018
TOTAL DUE	$8,955.39

VEOLIA ENVIRONNEMENT

Job Details: WE00000000000051980920

Job ID:	WE00000000000051980920	**Sequence (planned/actual):**	9120 / 10
Customer:	SOUTHERN MIDLANDS COUNCIL	**BP Number:**	70046761
Location Description:		**Location ID:**	CL-1259518
Address:	Council Depot, OATLANDS 7120		
Contact:		**Phone:**	0
Service type:	TIP AND RETURN		
Pref. service time:			
Waste type:	GENERALWASTE		
Contract desc:	10M3 HOOK GENERAL - SOIL STORAGE		
Container type:	HK_10.0_CM		
Job status:	Job Complete		
Planned date:	Wednesday, 2 May 2018		
Start time:	Wednesday, 2 May 2018 6:18:00 AM		
Finish time:	Wednesday, 2 May 2018 10:59:01 AM		
One time contact:			
One time phone:			
One time notes:			
Driver directions:			
Perm hazard notes:			
Delivery docket req:	Yes	**Delivery docket no.:**	74523
Payment required:	No		
Container count:	1	**Containers collected:**	1
Waste weight:	0 kg		
Pref. disposal location:			
Disposal location:	Copping Landfill (Southern Waste Solution)		
Pref. waste type:			
Waste type:	CopLan - Haz Waste Low Lvl (TO)		
Disposal weight:	6.66 TO		
Disposal docket no.:	72383		
Cust call required:	No	**Ring in:**	Yes
Signature required:	Yes	**Signature captured:**	No
EPA required:	No	**EPA number:**	
Job confirmed by:	Labour Hire - Driver (driver)		

VEOLIA ENVIRONNEMENT

Job Details: WE000000000000051981197

Job ID:	WE000000000000051981197	**Sequence (planned/actual):**	9130 / 20
Customer:	SOUTHERN MIDLANDS COUNCIL	**BP Number:**	70046761
Location Description:		**Location ID:**	CL-1259825
Address:	Council Depot, OATLANDS 7120		
Contact:		**Phone:**	0
Service type:	TIP AND RETURN		
Pref. service time:			
Waste type:	GENERALWASTE		
Contract desc:	10M3 HOOK GENERAL - SOIL STORAGE		
Container type:	HK_10.0_CM		
Job status:	Job Complete		
Planned date:	Wednesday, 2 May 2018		
Start time:	Wednesday, 2 May 2018 10:59:04 AM		
Finish time:	Wednesday, 2 May 2018 2:11:27 PM		
One time contact:			
One time phone:			
One time notes:			
Driver directions:			
Perm hazard notes:			
Delivery docket req:	Yes	**Delivery docket no.:**	74523
Payment required:	No		
Container count:	1	**Containers collected:**	1
Waste weight:	0 kg		
Pref. disposal location:			
Disposal location:	Copping Landfill (Southern Waste Solution)		
Pref. waste type:			
Waste type:	CopLan - Haz Waste Low Lvl (TO)		
Disposal weight:	6.68 TO		
Disposal docket no.:	72395		
Cust call required:	No	**Ring in:**	Yes
Signature required:	Yes	**Signature captured:**	No
EPA required:	No	**EPA number:**	
Job confirmed by:	Labour Hire - Driver (driver)		

VEOLIA ENVIRONNEMENT

Job Details: WE00000000000052002028

Job ID:	WE00000000000052002028	**Sequence (planned/actual):**	9100 / 1
Customer:	SOUTHERN MIDLANDS COUNCIL	**BP Number:**	70046761
Location Description:		**Location ID:**	CL-1259518
Address:	Council Depot, OATLANDS 7120		
Contact:		**Phone:**	0
Service type:	REMOVAL		
Pref. service time:			
Waste type:	GENERALWASTE		
Contract desc:	10M3 HOOK GENERAL - SOIL STORAGE		
Container type:	HK_10.0_CM		
Job status:	Job Complete		
Planned date:	Thursday, 3 May 2018		
Start time:	Thursday, 3 May 2018 8:17:39 AM		
Finish time:	Thursday, 3 May 2018 10:00:42 AM		
One time contact:			
One time phone:			
One time notes:	BIN IN OUR YARD - LVL2 CONTAMINATED SOIL		
Driver directions:			
Perm hazard notes:			
Delivery docket req:	Yes	**Delivery docket no.:**	74719
Payment required:	No		
Container count:	1	**Containers collected:**	1
Waste weight:	0 kg		
Pref. disposal location:			
Disposal location:	Copping Landfill (Southern Waste Solution)		
Pref. waste type:			
Waste type:	CopLan - Haz Waste Low Lvl (TO)		
Disposal weight:	11.8 TO		
Disposal docket no.:	72413		
Cust call required:	No	**Ring in:**	Yes
Signature required:	Yes	**Signature captured:**	No
EPA required:	No	**EPA number:**	
Job confirmed by:	Clifford Richard (driver)		

VEOLIA ENVIRONNEMENT

Job Details: WE00000000000052196999

Job ID:	WE00000000000052196999	**Sequence (planned/actual):**	9150 / 50
Customer:	SOUTHERN MIDLANDS COUNCIL	**BP Number:**	70046761
Location Description:		**Location ID:**	CL-1259825
Address:	Council Depot, OATLANDS 7120		
Contact:		**Phone:**	0
Service type:	REMOVAL		
Pref. service time:			
Waste type:	GENERALWASTE		
Contract desc:	10M3 HOOK GENERAL - SOIL STORAGE		
Container type:	HK_10.0_CM		
Job status:	Job Complete		
Planned date:	Monday, 14 May 2018		
Start time:	Monday, 14 May 2018 11:32:27 AM		
Finish time:	Monday, 14 May 2018 3:16:02 PM		
One time contact:			
One time phone:			
One time notes:			
Driver directions:			
Perm hazard notes:			
Delivery docket req:	Yes	**Delivery docket no.:**	74290
Payment required:	No		
Container count:	1	**Containers collected:**	1
Waste weight:	0 kg		
Pref. disposal location:			
Disposal location:	Copping Landfill (Southern Waste Solution)		
Pref. waste type:			
Waste type:	CopLan - Haz Waste Low Lvl (TO)		
Disposal weight:	10.16 TO		
Cust. charge weight:	10.16 TO		
Disposal docket no.:	72627		
Cust call required:	No	**Ring in:**	Yes
Signature required:	Yes	**Signature captured:**	No
EPA required:	No	**EPA number:**	
Job confirmed by:	Woods Robert (driver)		

Southern Waste Solutions

RECEIVED
-8 OCT 2018
By SMC

Southern Waste Solutions
PO Box 216
New Town TAS 7008

ABN 87 928 486 460

Email: sws.finmanager@internode.on.net
Office: 03 6273 9712
Fax: 03 8669 4064

Southern Midlands Council
71 High Street
OATLANDS TAS 7120

Tax Invoice

Invoice No: 7333
Invoice Date: 30/09/2018
Order No:
Terms: 14 days
Due Date: 14/10/2018

V01951

Description	GST	Amount
Copping gate fees - 73.26t Contaminated soil Level 2 - September 2018	879.12	8,791.20

23035. G02.C602000I.91

AUTHORISED FOR PAYMENT BY:
Signature:
Craig Whatley -
Assistant Works Co-ordinator
Works & Services Department

Direct Deposit: Southern Waste Solutions
Bank: CBA BSB: 067102 Acc: 1016 9169 ✓

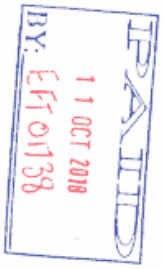
- Payment due 14 days or interest charged at 1% per month

Subtotal:	$8,791.20
GST:	$879.12
Total:	**$9,670.32**

PAID
11 OCT 2018
BY: EFT01138

Southern Midlands Council
Deliveries to Copping
September 2018

Docket	Date Time	Rego	Waste	Tonnes	Contractor	Client
75408	20/09/2018 11:00	A 59 VT-CHURCH ST OA	CONTAMINATED SOIL LEVEL 2	12.64	HAZELL BROS GROUP	SOUTHERN MIDLANDS COUNCIL
75409	20/09/2018 11:06	D 01 UV-CHURCH ST OA	CONTAMINATED SOIL LEVEL 2	11.66	HAZELL BROS GROUP	SOUTHERN MIDLANDS COUNCIL
75428	20/09/2018 15:29	Z 98 TE CHURCH ST OA	CONTAMINATED SOIL LEVEL 2	24.18	HAZELL BROS GROUP	SOUTHERN MIDLANDS COUNCIL
75429	20/09/2018 15:34	IT 9803 CHURCH ST OA	CONTAMINATED SOIL LEVEL 2	24.78	HAZELL BROS GROUP	SOUTHERN MIDLANDS COUNCIL



73.26	$120.00	$8,791.20

Southern Waste Solutions

Southern Waste Solutions
PO Box 216
New Town TAS 7008

ABN 87 928 486 460

Email: sws.finmanager@internode.on.net
Office: 03 6273 9712
Fax: 03 8669 4064

Southern Midlands Council
71 High Street
OATLANDS TAS 7120

Tax Invoice

Invoice No: **7390**
Invoice Date: 31/10/2018
Order No:
Terms: 14 days
Due Date: 14/11/2018

V01951

Description	GST	Amount
Copping gate fees - 115.70t Contaminated soil Level 2 - October 2018. SMC PO 34293 dated 31/10/18.	1,388.40	13,884.00

2385 · 602 · C6020001.91

AUTHORISED FOR PAYMENT BY:
Signature: .....
Craig Whatley -
Assistant Works Co-ordinator
Works & Services Department

AUTHORISED FOR PAYMENT BY:
Signature: .....
Jack Lyall - Manager
Works & Services Department

PAID
18 NOV 2018
BY: EFT01744

Direct Deposit: Southern Waste Solutions
Bank: CBA BSB: 067102 Acc: 1016 9169

- Payment due 14 days or interest charged at 1% per month

Subtotal:	$13,884.00
GST:	$1,388.40
Total:	**$15,272.40**

Southern Midlands Council
Deliveries to Copping
October 2018

Invoice #

Docket	Date Time	Rego	Waste	Tonnes	Contractor	Client
75788	8/10/2018 13:02	A 59 VT-CHURCH ST OA	CONTAMINATED SOIL LEVEL 2	39	HAZELL BROS GROUP	SOUTHERN MIDLANDS COUNCIL
75789	8/10/2018 13:03	D 01 UV-CHURCH ST OA	CONTAMINATED SOIL LEVEL 2	38.22	HAZELL BROS GROUP	SOUTHERN MIDLANDS COUNCIL
76324	31/10/2018 14:22	1H19LR CHURCH ST OAT	CONTAMINATED SOIL LEVEL 2	38.48	HAZELL BROS GROUP	SOUTHERN MIDLANDS COUNCIL

Refer purchase order 34293 dated 31/10/2018

115.70	$120.00	$13,884.00	7390

SOUTHERN MIDLANDS COUNCIL

Waste deliveries to Copping

November 2019

Docket	Date/time	Registration	Waste category	Tonnes	Contractor	Client
87270	19/11/2019 9:24	B0086A	CLEAN FILL	30.68	HAZELL BROS GROUP	SOUTHERN MIDLANDS COUNCIL
87271	19/11/2019 9:27	B0086B	CLEAN FILL	33.1	HAZELL BROS GROUP	SOUTHERN MIDLANDS COUNCIL
87301	19/11/2019 14:48	B0086A	CLEAN FILL	35.96	HAZELL BROS GROUP	SOUTHERN MIDLANDS COUNCIL
87303	19/11/2019 15:07	B0086B	CLEAN FILL	32.9	HAZELL BROS GROUP	SOUTHERN MIDLANDS COUNCIL

Minimum charge per month - 1 tonne	CLEAN FILL	**132.64**	**$60.00**	**$7,958.40**	*8794*

COPPING REFUSE DISPOSAL SITE JOINT AUTHORITY
PO Box 216
New Town TAS 7008

ABN 87 928 486 460

Email: sws.finmanager@internode.on.net
Office: 03 6273 9712
Fax:

Southern Midlands Council
71 High Street
OATLANDS TAS 7120

Tax Invoice

Invoice No:	**8794**
Invoice Date:	30/11/2019
Order No:	
Terms:	14 days
Due Date:	14/12/2019

Description	GST	Amount
Copping gate fees - 132.64t Clean fill - November 2019. SWS ref: B0086 Excavations from the racecourse, originally from 18 Church St Oatlands. AUTHORISED FOR PAYMENT BY Signature Andrew Benson Deputy General Manager Manager Community & Corporate Development	795.84	7,958.40

Direct Deposit: Southern Waste Solutions
Bank: CBA BSB: 067102 Acc: 1016 9169

- Payment due 14 days or interest charged at 1% per month

Subtotal:	$7,958.40
GST:	$795.84
Total:	**$8,754.24**

Hazell Bros Group Pty Ltd

Tax Invoice

ABN: 27 088 345 804

8B Lampton Avenue
DERWENT PARK TAS
7009
Phone: 03 6277 7888
Fax: 03 6273 4160

To: SOUTHERN MIDLANDS COUNCIL
PO BOX 21
OATLANDS TAS 7120

Customer No: 1SOUT13

RECEIVED
28 NOV 2019
By SMC

Invoice No: TIP9898
Invoice Date: 19/11/2019

Customer Order No: 35622

WE ARE NOT COMMON CARRIERS - WE DO NOT INSURE - INTEREST CHARGED ON OVERDUE ACCOUNTS

V03951

Date	Docket No	Unit	Description	Qty	Type	Rate	Total
19/11/2019	T266487	1VT866	(319748) TRUCK AND TRAILER - CONTAMINATED WASTE - COPPING TIP	10.75	Tonnage	140.00	1,505.00
		OVERTIME	OVERTIME	1.75	Overtime	20.00	35.00
19/11/2019	T266488	1VT1192	(319750) TRUCK AND TRAILER - CONTAMINATED WASTE - COPPING TIP	10.50	Tonnage	140.00	1,470.00
		OVERTIME	OVERTIME	1.50	Overtime	20.00	30.00

23035-602.C602001.91

AUTHORISED FOR PAYMENT BY:
Signature:
Craig Whatley -
Assistant Works Co-ordinator
Works & Services Department

	Please Pay on invoice	**Sub Total**	**3,040.00**
		GST	**304.00**
		Grand Total	**3,344.00**

Remit To:
Hazell Bros Group Pty Ltd
PO BOX 430
MOONAH TAS 7009

Bank Account:
National Australia Bank
76 Liverpool Street
087 - 007 58-424-5828

Customer No 1SOUT13
Invoice: TIP9898
Grand Total: **3,344.00**

hazellbros

P.O. Box 430
MOONAH 7009
Telephone: (03) 6277 7888
Facsimile: (03) 6273 4028

DOCKET

ORDER NO. 35622

TRANSPORT · HEAVY HAULAGE · TIPPERS

T266487

Hirer: Southern Midlands

A/c Address:

DATE 19 / 11 / 19

Job Location: Copping Tip

Details: Cotland's Contaminated Material to Copping SI

MINIMUM 2 HOURS WEEKDAYS · 4 HOURS WEEKENDS

DESCRIPTION		RATE	AMOUNT
Hourly Hire 10.75 hrs	@		
Standby	@		
Tonnage			
Start Time: 5:45 am Finish Time: 4:30 pm			
Disposal Fees Yes ☐ No. of Loads No ☐ No. of Loads			
	TOTAL	**$**	

Customer's Signature:

Driver: Dylan Stark Truck Unit No: 1106 Trailer No: TVL188

PLEASE READ CONDITIONS OF CONTRACT ON REVERSE

CUSTOMER - WHITE · INVOICE - PINK · SUBCONTRACTOR - YELLOW

hazellbros

P.O. Box 430
MOONAH 7009
Telephone: (03) 6277 7888
Facsimile: (03) 6273 4028

DOCKET

ORDER NO. 35622

TRANSPORT · HEAVY HAULAGE · TIPPERS

T266488

Hirer: Southern Midlands

A/c Address:

DATE 19 / 11 / 19

Job Location: Copping Tip

Details: Cotland's Contaminated Material to Copping

MINIMUM 2 HOURS WEEKDAYS · 4 HOURS WEEKENDS

DESCRIPTION		RATE	AMOUNT
Hourly Hire 10.50 hrs	@		
Standby	@		
Tonnage			
Start Time: 5:45 am Finish Time: 4:15 pm			
Disposal Fees Yes ☐ No. of Loads No ☐ No. of Loads			
	TOTAL	**$**	

Customer's Signature:

Driver: John Shortell Truck Unit No: 1192 Trailer No: TVL227

PLEASE READ CONDITIONS OF CONTRACT ON REVERSE

CUSTOMER - WHITE · INVOICE - PINK · SUBCONTRACTOR - YELLOW

Appendix O – Photographs

Table – Site Photographs

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
Site overview – 31/1/2018	
	Looking north towards South Parade from centre of site. Entry gate from South Parade is on RHS.
	Looking north-west towards former mortuary on South Parade from centre of site.
	Looking south west, over the stockpile of broken concrete from the demolition of the truck service pit. Not staining or odours noted on the concrete.
	Looking south east from centre of site, Fish Building to left, Council chambers in the centre and community centre to the centre right; green shed to RHS marks western boundary; gate next to green shed is the Church Street entrance.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	Looking south-south east from centre of site. Site boundary is marked by the wooden fence.
	Excavator used for digging test pits; image taken looking south-east, from the southern are of the site, adjacent to the Fish building and community garden area.
	Cleaning excavator bucket with a hose between each test pit.
Grid Sampling Test Pits on 31/1/2018	
	TP1, adjacent to stormwater grate.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	TP2; note shallow depth of sandstone bedrock, overlain by imported gravel hardstand.
	TP3; as per TP2
	TP4; as per TP2, but a layer of loamy soils is present between the imported gravel layer and sandstone bedrock.
	TP5; as per TP4, though natural ground may have been originally sloped in this area and there is a greater depth of fill overlying natural loam.

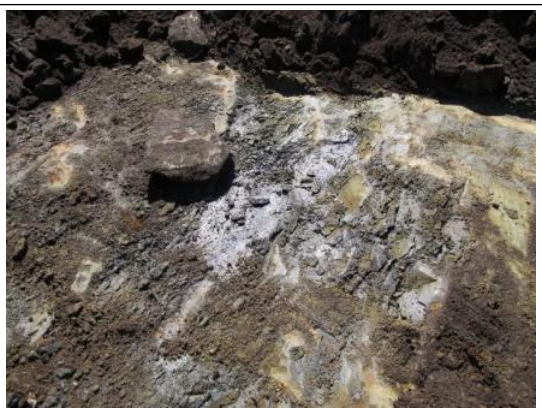
PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	TP6 (31/1/2018) – note moisture seeping in the back left hand corner. Similar profile to TP4.
	TP6 (20/2/2018) – rainwater captured in the test pit was sampled on 20/2/2018.
	TP7; similar profile to TP2.
	TP8; similar profile to TP4, with shallower bedrock.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	TP9
	TP10 – Area was later excavated as part of the AST remedial excavation works.
	TP11

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	TP12 – note green/blue staining interpreted to be from degraded hydrocarbon contamination, but concentrations are no longer of concern due to effective biodegradation.
	TP13
	TP14

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	TP15
	TP16 – note broken water pipe segment in the LHS wall; immediately behind the pipe, along the back wall, moisture ingress was noted at around 1m depth.
Target 1 – AST location – the investigation became a remedial excavation over several rounds of work, including 6/2/2018 (initial investigation of Target 1), 20/2/2018 (1st round of remedial excavations), 30 – 31/5/2018 (2nd round of remedial excavations) and 12/9/2018 (sewer line excavation completion); Investigation trenches around the excavation boundaries were dug 21/6/2018 (trenches 1 – 4) and 12/9/2018 (trenches 5 and 6)	
	Breaking ground at Target 1 – former AST storage location.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	Diesel impacted material was intersected at Target 1 location, coinciding with green/blue stained materials visible in the excavator bucket.
	Image showing remedial works logistics: excavator, dog trailers, yard truck, various buckets, and lined contaminated soils stockpile area to RHS. Excavator was used to carry out remedial excavations, which included stripping the top clean gravel veneer and stockpile separately; excavating diesel impacted materials and stockpiling initially into two dog trailers (covered in blue tarp), then onto plastic-covered gravel laydown. The yard truck was used to transport the soils to nominated stockpile locations (clean, dirty, or only slightly impacted)
	Illustration of the contaminated soils stockpiles area, constructed with fine blue metal bedding and lined with thick plastic.
	Example of remedial excavation progress, showing clean gravels profile at surface, underlain by sandy, silty, and in this instance, clayey horizons, overlying sandstone bedrock. Green staining typically represented contaminated soils, or previously impacted soils, which had mostly bioremediated since the AST had been removed around 15 years ago (2003?).

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	Remedial excavation in progress, showing stormwater pipe crossing the excavation, and green-stained contaminated materials, included ripped sandstone slabs disposed as contaminated (Level 2) waste.
	Example of the impact from diesel contamination on the sandstone bedrock. As much of the contamination as possible was scraped off from the bedrock surface, sometimes resulting in large slabs of rock being removed.
	Investigating the sewer 'inlet' pipe trench as a possible contamination conduit. No evidence of contamination was found in the inlet trench (east of the manhole).

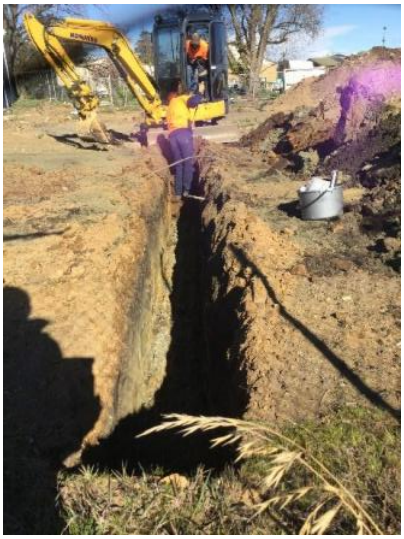
PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	Investigating the sewer 'outlet' pipe trench as a possible contamination conduit. No evidence of contamination was found in the outlet trench (west of the manhole). The grey material was damp but not odorous or contaminated.
	Looking south within the remedial excavation. Note depth of excavation works chasing contamination within several sandstone horizons. The manhole is believed to be for stormwater.
	Example of clay interbed (grey) occurring between sandstone horizons. The clay may have acted as a 'sealant', thereby limiting the movement of contamination through more permeable sandstone.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	Looking north towards the diesel AST remedial excavation. In the foreground are examples of two investigation trenches dug parallel to the remedial excavation to confirm that the contamination edges had been reached in the excavation, and did not extend further laterally.
	First round and extent of remedial excavation works from the AST storage location on 20/2/2018; image looking north. Note that the excavation required scraping slabs of sandstone bedrock. Some green staining remains, but the majority of the contaminated material has been removed. Stockpiles on the LHS are 'cleaner' materials (labelled Stockpiles A in Figure 6). Stockpiles on RHS are contaminated materials (labelled Stockpiles B in Figure 6). Yellow arrow shows the area to the northwest which appeared to still have contamination, which was followed up in May 2018.
	View of remedial excavation looking from north to south on 20/2/2018.
	View from the southern end of the Stockpiles B (diesel contaminated materials).

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	31/5/2018: remedial excavation works following the sewer pipe, west of the manhole, towards the Church Street entrance to site. Work was halted and resumed 12 September 2018.
	Overview of final remedial excavation for AST diesel contamination, showing southern half completed in February, up to the sewer manhole, and then northern half completed in May, north of the sewer line and manhole, including the sewer line to the west. Trenches dug 21 June 2018 were aimed at confirming the remedial excavation had effectively removed the diesel contamination. Photo taken on 5/7/2018 by Bill Cromer (oblique drone image) looking north.
	Remedial works along the western end of the sewer pipe, towards Church Street entrance carried out on 12/9/2018. Materials were checked above and below the pipe at several locations. The contamination appears to have extended west along the pipe only another metre past the excavation completed on 31/5/2018, image above. The rest of the pipe trench excavated on 12/9/2018 was found to not be impacted by diesel / hydrocarbon contamination.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	The last 1m thick layer of soil plugging the previously excavated sewer trench was removed, after verifying that the remainder of the sewer trench was unimpacted. The 'plug' of soil was contaminated and stockpiled with other Level 2 waste soils for offsite disposal.
	21/6/2018: Trench 1, dug east of the diesel AST remedial excavation, to confirm lack of other contamination paths beyond the remedial excavation.
	21/6/2018: Trench 2, dug east of the sewer manhole and diesel AST remedial excavation, to confirm lack of other contamination paths beyond the remedial excavation. Note sewer pipe intersected along the RH edge of the trench, in the foreground.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	21/6/2018: View looking south across Trench 3, dug west from the diesel AST remedial excavation (also visible in the drone oblique aerial shown above). Note green staining in the RHS soil piles, near the western end of the trench.
	21/6/2018: Looking west within Trench 3; note the blue/green staining at the western end. Soils were tested and showed low hydrocarbon concentrations which represent historical contamination which has bioremediated to a level that does not pose a risk to human health or ecological values. As the area will remain open parkland, bioremediation will continue via oxygen penetrating the shallow profile.
	21/6/2018: View of Trench 4, looking eastwards from its western end. Note greenish / blue staining within thin gravel lenses in the walls. PID, odours and analytical testing have shown that there was a minor amount of hydrocarbon contamination in this area, associated with these stained materials. The contamination does not appear to be associated with the diesel AST. Natural bioremediation processes have degraded the hydrocarbons to levels which do not pose a risk to human health or ecological values. As the area will remain open parkland, bioremediation will continue via oxygen penetrating the shallow profile.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	21/6/2018: View of Trench 4, looking eastwards from midway along. Note slight greenish staining at two locations in the floor and within thin gravel lenses in the walls. Contamination in the floor may be associated with the diesel AST contamination. The gravel lenses are not considered to be associated with the diesel AST, but are likely related to other small spills. PID, odours and analytical testing has shown that there was a minor amount of hydrocarbon contamination in this area, but natural bioremediation processes have degraded the hydrocarbons to levels which do not pose a risk to human health or ecological values. As the area will remain open parkland, bioremediation will continue via oxygen penetrating the shallow profile.
	12/9/2018: Trench 5, dug to confirm southern end of diesel AST remedial excavation had removed diesel contamination. View looking west from eastern end.
	12/9/2018: Trench 5, western end, showing slight greenish staining in the natural weathered sandstone profile, beneath the natural loam layer (black). No hydrocarbon contamination was detected either by odour, PID or analytical testing. As per other areas on site, historical impact appears to have occurred by natural bioremediation processes appear to have degraded the contaminating compounds to levels that do not pose a risk to human health or ecological values.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	12/9/2018: Trench 6, dug along the eastern edge of the first round of AST remedial excavation to confirm eastern extent of excavation had removed the contaminated soils. Image looking south from the northern end of the trench.
	12/9/2018: Trench 6, showing greenish staining midway along its length. The stained soils were odorous and were considered contaminated and required chasing out via excavation. Image looking north, along the trench.
	12/9/2018: View looking north of the extent of the Trench 6 remedial excavation.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	12/9/2018: Floor of Trench 6 remedial excavation.
Target 2 – Confirmation & Validation of Historical UPSS 1 Removal – 2/2/2018	
	Trenches were initially dug to intersect the UPSS or its backfill. Backfill was identified; the UPSS appears to have been removed.
	Yellow spray markings show the extents of the backfill which was placed historically after the removal of the UPSS.
	Clearly identifiable backfill material overlying the natural profile.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	Identified backfill and pit outline was excavated to allow validation sampling.
Target 3 – Removal and Validation of UPSS 2 – 2/2/2018	
	Removal of backfill sands from around UPSS2.
	Water noted at the base; the water was later found to be from the tank having been backfilled with water (by vandals), and the tank having developed two small holes at the base which caused the water to leak.
	Fuel line and bowser point visible near the centre and RHS of the picture.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	Second fuel line being removed.
	Tank being pulled out of the pit.
	Water leaking from the tank being collected into bins and pumped for transport.
	Skip with backfill sands.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	Fuel lines trench which was sampled for UPSS decommissioning validation.
	Final UPSS pit excavation (2/2/2018); validation sampling in lower walls and base. Note that there is no water in the pit. Minor contamination was noted in the walls and base of the pit and impacted bedrock was excavated and removed. Contamination is likely to have occurred during minor overfilling spill events. There was no evidence of gross, long-term contamination having occurred in the pit.
	UPSS excavation on 20/2/2018: rainwater had accumulated within the pit and was sampled on 20/2/2018.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
Target 4 – Vehicle Wash Bay and Pesticides Loading – 1/2/2018	
	Shallow excavation beneath the vehicle wash bay and pesticides loading hardstand.
Target 5 – Truck Service Pit – 1/2/2018	
	View of demolished truck service pit, looking south.
	View of demolished truck service pit, looking north.
	Floor area beneath the former shed area at the northern end of the truck service building.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
Target 6 – Original Oil and Pesticides Store – 1/2/2018	
	T6-01 scape
	T6-02 scrape
Target 11 – Historical / anecdotal diesel spill path – 1/2/2018	
	T11-01 – looking south towards the location of the former AST; Community Centre building in the RHS background
	T11-02 – looking east

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	T11-03 – looking east
	T11-04 – looking east
	T11-06 – looking east
	T11-07 – looking east

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	T11-08 – looking east
Target 13 – Historical / anecdotal UPSS3 – attempt to locate – 1/2/2018. A ground penetrating radar (GPR) was initially used, but it did not detect anything, so trenches were dug to try and intersect the UPSS or pit backfill, if present.	
	A pipe was intersected which could possibly have been a fuel line. The excavations then followed the line, hoping to intersect the tank.
	The excavator followed the line which extended southwards adjacent to the Fish building, where it ended. No tank or other infrastructure was found at either end of the pipe. No fuel odour was noted in the pipe. Its purpose is not known.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	Looking northwards, from the rear of the Fish building showing trenches dug in the paddock, trying to locate the possible UPSS.
	Looking east, on the north side of the Fish building, trench dug west to east aiming to intersect the UPSS and following the intersected pipe.
	Looking east along the north side of the Fish building, trench dug in extension of the southern end of the pipe.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	Looking south towards the Fish building, trench dug at right angles to the direction of the pipe.
	Looking south towards Fish building along a stormwater pipe trench.
Target 14 – Main Workshop – 1/2/2018	
	Photo looking south from the Main Workshop area towards the Community Centre wall. The green oval shows the location where samples ACM1 and ACM2 were found. They were associated with a layer of fill material around 0.4m thick which was investigated for ACM during subsequent works, documented below.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	Sample ACM1 at its original location – tested positive for asbestos minerals, but confirmed as non-friable (i.e. will not readily release hazardous fibres).
	Sample ACM1 at its original location – tested positive for asbestos minerals, but confirmed as non-friable (i.e. will not readily release hazardous fibres).
	Samples ACM1 and ACM2 being despatched for testing.
	Sample ACM3 was found at surface near the former AST (Target 1). It did **not** test positive for asbestos minerals.

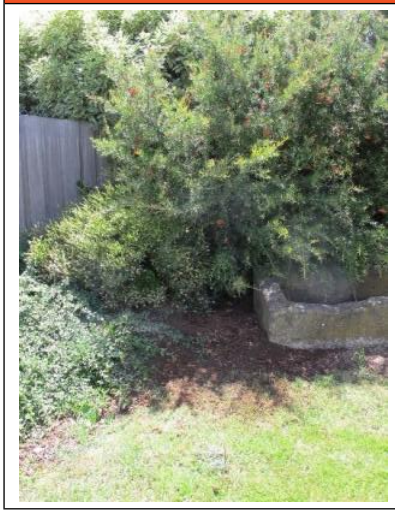
PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	T14-01 sampling location – image looking south east towards the north wall of the Community Centre. Note: fragments of ACM (samples ACM1 and ACM2) were found in the area marked with a green oval, as noted above. Further sampling and investigations targeting ACM were undertaken in the fill material and are documented below.
	T14-02 – image looking westwards towards neighbour's property.
	T14-03 – image looking northwards. Note the black sooty material and fragments of rusted steel rod which are believed to be associated with historical use of the site by a blacksmith. The sample at this location had elevated metals concentrations and soils were excavated on 31/5/2018, validation sampling was undertaken on the same day and analytical results reported metals at concentrations below applicable guideline levels. Excavated waste soils (refer to next photo) were disposed offsite as Level 2 contaminated soils.
	31/5/2018: Image showing the SP-MET stockpile (RHS of image, labelled in white, overlain with plastic). This waste soil was excavated from around sample location T14-03 in order to remove heavy metals impacted soils. Waste soils were disposed as Level 2.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	31/5/2018: Image showing excavation of sooty and blacksmith scrap iron wastes from the area immediately north of the workshop building.
	31/5/2018: Image showing scrap iron pieces from blacksmith wastes, including numerous horse-shoes. These wastes were excavated north of the former workshop building and were disposed as Level 2 waste.
ACM Investigation works in fill (31/5/2018), following ACM detection (samples ACM1, ACM2)	
	Digging ACM investigation and sampling trenches in the fill materials along the north side of the Community Centre building.
	Trench dug in fill at the north-west corner of the Community Centre.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	Looking west along north side of Community Centre, viewing ACM investigation trenches in fill.
	Looking south along eastern side of Community Centre, viewing ACM investigation trench in fill.
	Looking south along eastern side of Community Centre, viewing ACM investigation trench through fill. Note dark layer is original natural loam layer which has been covered by gravel hardstand. Beneath the loam is natural sand and weathered sandstone. The greenish staining suggests old hydrocarbon contamination, but tests (PID, odour & analysis) show that historical impact has biodegraded to levels which are below applicable site criteria.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	Looking west along the southern fence line, parallel to the Memorial Garden, viewing ACM investigation trench through fill. Note AC Pipe in the background, under the excavator. Several AC (asbestos containing) pipe fragments were intersected while digging the trenches along the southern fence line. AC pipes are bonded asbestos and do not readily release fibres. AC pipe fragments encountered were excavated and double wrapped in heavy plastic and later disposed to landfill as asbestos waste.
	Looking south towards southern fence, showing ACM investigation trenches dug along the southern boundary and eastern side of the Community Centre. ACM sampling was done from the soil stockpiles along the side of each trench.
	Looking West towards the Community Centre, showing ACM investigation trenches dug along the eastern and northern side of the Community Centre. ACM sampling was done from the soil stockpiles along the side of each trench. Bulk samples were taken in large green bags as shown on the RHS of the image. Fill materials were also tested for metals and ACM.
	The soil stockpile in the foreground on plastic consists of soils excavated from the area where confirmed ACM was found, i.e. the fill materials which included samples ACM1 and ACM2. Testing of this stockpile came back negative for ACM, and negative for ACM fibres (i.e. none were detected). The material was also tested for metals.
Target 15 – Old Workshop – 31/1/2018 - 1/2/2018 – note that the old workshop was located across the Fish building and the current garden area. Due to the Fish building being in use during investigations, access was	

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
only available to the garden area.	
	TP13 – looking westwards.
	BH1 (T15-06): auger fitting used to drill next to the Fish building due to access restrictions.
	BH2 (T15-07): auger showing profile of loam above yellow weathered sandstone.

PHOTOGRAPH	SAMPLE LOCATION ID AND COMMENT
	Image showing location of BH3 (T15-08) which was drilled adjacent to the LHS of the sandstone trough. The profile was similar to that intersected in BH2, and TP13, immediately adjacent to it.

Appendix P – Laboratory Chain of Custody Documents

SCANNED

CHAIN OF CUSTODY

ALS Laboratory: please tick →

ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com

NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2083 E: nowra@alsglobal.com

PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com

WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: SEMF Pty. Ltd.	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	☒ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle):
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI	ALS QUOTE NO.: EN-222-17 and ME/463/17	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 4193.005		OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	CONTACT PH: 0417 523 625		Other comment:
SAMPLER: Fiona Keserue-Ponte	SAMPLER MOBILE: 0417 523 625		
COC emailed to ALS? (YES)	EDD FORMAT (or default):		
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@semf.com.au			
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@semf.com.au			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Fiona Keserue-Ponte			Larrei (ALS)
DATE/TIME: 7pm 31/1/2018	DATE/TIME:	DATE/TIME:	DATE/TIME: 2/2 12:25

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).														Additional Information
LAB ID	SAMPLE ID		DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-4 SG (TRH (C6-C40 + BTEXN)	S-7 (TRH (C6-C4-) / BTEXN / PAH	S-7 SG (TRH (C6-C4-) / BTEXN / PAH	S-24 (TRH (C6-C4-) / BTEXN / PAH plus Phenols		S-3 (15 Metals NEPM suite)	P-22 (NEPM screen for soil Classification)		S-12 (OC & OP pesticides)	EP 202 (Phenoxy acid herbicides)	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)	w-18 (TRC C6-c10) + btexn	
	rinsate digger	1	31/01/2018	W	BOTTLES	4												√	√		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	TB1	2	31/01/2018	W	BOTTLE	1														√	
	triplicate 1	3	31/01/2018	S	JAR, ICE	1			√				√								
	duplicate 2	4	31/01/2018	S	JAR, ICE	1			√				√								
	NEPM 1	5	31/01/2018	S	ZIP LOCK PLASTIC BAG	1								√							
	NEPM 2	6	31/01/2018	S	ZIP LOCK PLASTIC BAG	1								√							
	NEPM 3	7	31/01/2018	S	ZIP LOCK PLASTIC BAG	1								√							
	TP1-01	8	31/01/2018	S	JAR, ICE	1			√				√								
	TP1-02	9	31/01/2018	S	JAR, ICE	1				√			√								
	TP2-01	10	31/01/2018	S	JAR, ICE	1			√				√								
	TP2-02	11	31/01/2018	S	JAR, ICE	1			√				√								
	TP3-01	12	31/01/2018	S	JAR, ICE	1			√				√								
	TP3-02	13	31/01/2018	S	JAR, ICE	1			√				√								
	TP4-01	14	31/01/2018	S	JAR, ICE	1			√				√								
	TP4-02	15	31/01/2018	S	JAR, ICE	1				√			√								
	TP5-01	16	31/01/2018	S	JAR, ICE	1			√				√								
	TP5-02	17	31/01/2018	S	JAR, ICE	1				√			√								
	TP6-01	18	31/01/2018	S	JAR, ICE	1			√				√								
	TP6-02	19	31/01/2018	S	JAR, ICE	1				√			√								
	TP7-01	20	31/01/2018	S	JAR, ICE	1			√				√								
	TP7-02	21	31/01/2018	S	JAR, ICE	1				√			√								
	DUPLICATE 1	22	31/01/2018	S	JAR, ICE	1				√			√								
					TOTAL	23															

Environmental Division Melbourne
Work Order Reference
EM1802453

Telephone : + 61-3-8549 9600

FREIGHT

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; IB = Unpreserved Bag.

BP 5/2

CHAIN OF CUSTODY

ALS Laboratory: please tick →

ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee mail@alsglobal.com
NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4958 9433 E: samples.newcastle@alsglobal.com
NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7666 E: samples.perth@alsglobal.com
SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com
WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph. 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: SEMF Pty. Ltd.	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	✠ Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT **(List due date):**	Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI	**ALS QUOTE NO.:** EN-222-17 and ME/463/17	COC SEQUENCE NUMBER (Circle)	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 4193.005		COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	**CONTACT PH:** 0417 523 625	OF: 1 2 3 4 5 6 7	Other comment:

SAMPLER: Fiona Keserue-Ponte	**SAMPLER MOBILE:** 0417 523 625	**RELINQUISHED BY:**	**RECEIVED BY:**
COC emailed to ALS? (YES)	**EDD FORMAT (or default):**	*Fiona Keserue-Ponte*	
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@semf.com.au		DATE/TIME:	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@semf.com.au		7pm 31/1/2018	

RELINQUISHED BY:	**RECEIVED BY:**	DATE/TIME:	DATE/TIME:
DATE/TIME:	DATE/TIME:		2/2

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).															Additional Information
LAB ID	SAMPLE ID		DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-4 SG (TRH (C6-C40 + BTEXN)	S-7 (TRH (C6-C4-) / BTEXN / PAH	S-7 SG (TRH (C6-C4-) / BTEXN / PAH	S-24 (TRH (C6-C4-) / BTEXN / PAH plus Phenols		S-3 (15 Metals NEPM suite)	P-22 (NEPM screen for soil Classification)		S-12 (OC & OP pesticides)	EP 202 (Phenoxy acid herbicides)	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)	w-18 (TRC C6-c10) + btexn		
	TP8-01	23	31/01/2018	S	JAR, ICE	1			√				√									Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	TP8-02	24	31/01/2018	S	JAR, ICE	1				√			√									
	TP9-01	25	31/01/2018	S	JAR, ICE	1			√				√									
	TP9-02	26	31/01/2018	S	JAR, ICE	1				√			√									
	TP10-01	27	31/01/2018	S	JAR, ICE	1			√				√									
	TP10-02	28	31/01/2018	S	JAR, ICE	1				√			√									
	TP13-01	29	31/01/2018	S	JAR, ICE	1				√			√									
	TP13-02	30	31/01/2018	S	JAR, ICE	1			√				√									
	TP11-01	31	31/01/2018	S	JAR, ICE	1			√				√									
	TP11-02	32	31/01/2018	S	JAR, ICE	1			√				√									
	TP12-01	33	31/01/2018	S	JAR, ICE	1			√				√									
	TP12-02	34	31/01/2018	S	JAR, ICE	1				√			√									
	TP12-03	35	31/01/2018	S	JAR, ICE	1			√				√			√	√					
	TP16-01	36	31/01/2018	S	JAR, ICE	1			√				√									
	TP16-02	37	31/01/2018	S	JAR, ICE	1			√				√									
			31/01/2018	S	JAR, ICE	1																
			31/01/2018	S	JAR, ICE	1																
			31/01/2018	S	JAR, ICE	1																
	TP14-01	38	31/01/2018	S	JAR, ICE	1				√			√									
	TP15-01	39	31/01/2018	S	JAR, ICE	1				√			√									
	TP15-02	40	31/01/2018	S	JAR, ICE	1			√				√									
					TOTAL	21																

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils;;B = Unpreserved Bag.

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

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☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

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☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: SEMF Pty. Ltd.	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	✻ Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT **(List due date):**	Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI	**ALS QUOTE NO.:** EN-222-17 and ME/463/17	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Free ice / frozen ice bricks present upon receipt? Yes No
ORDER NUMBER: 4193.005		OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	**CONTACT PH:** 0417 523 625		Other comment:
SAMPLER: Fiona Keserue-Ponte	**SAMPLER MOBILE:** 0417 523 625	**RELINQUISHED BY:** *Fiona Keserue-Ponte*	**RECEIVED BY:**
COC emailed to ALS? (YES)	**EDD FORMAT (or default):**	DATE/TIME: 3pm 6/2/2018	DATE/TIME:
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@semf.com.au		**RELINQUISHED BY:**	**RECEIVED BY:** Monica (ALS)
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@semf.com.au		DATE/TIME:	DATE/TIME: 7/2, 10:45

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: RESAMPLED LOCATIONS AS ORIGINALS FILLED WITH ICE WATER

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where **Metals** are required, specify **Total** (unfiltered bottle required) or **Dissolved** (field filtered bottle required).													Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-4 SG (TRH (C6-C40 + BTEXN)	S-7 (TRH (C6-C4-) / BTEXN / PAH	S-7 SG (TRH (C6-C4-) / BTEXN / PAH	S-24 (TRH (C6-C4-) / BTEXN / PAH plus Phenols		S-3 (15 Metals NEPM suite)	P-22 (NEPM screen for soil Classification)		S-12 (OC & OP pesticides)	EP 202 (Phenoxy acid herbicides)	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)	w-18 (TRC C6-c10) + btexn		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	triplicate 1 41	6/02/2018	S	JAR, ICE	1			√				√									
	TP1-01 42	6/02/2018	S	JAR, ICE	1			√				√									
	TP2-01 43	6/02/2018	S	JAR, ICE	1			√				√									
	TP3-01 44	6/02/2018	S	JAR, ICE	1			√				√									
	TP5-01 45	6/02/2018	S	JAR, ICE	1			√				√									
	TP6-02 46	6/02/2018	S	JAR, ICE	1				√			√									
	TP9-02 47	6/02/2018	S	JAR, ICE	1				√			√									
				TOTAL	7																

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

COC Melbourne

From: Shirley LeCornu
Sent: Tuesday, 6 February 2018 5:16 PM
To: COC Melbourne
Cc: Melbourne Enviro Services
Subject: FW: 4193.005 COC for resampled test pits
Attachments: COC 6Feb2018.xls

Follow Up Flag: Follow up
Flag Status: Flagged

FYI

Shirley LeCornu
Client Services Officer – Springvale
Environmental

T +61 3 8549 9600 D +61 3 8549 9630
F +61 3 8549 9626
Shirley.lecornu@alsglobal.com
2-4 Westall Rd
Springvale Vic 3171
Australia

From: Fiona Keserue-Ponte [mailto:Fiona.Keserue-Ponte@semf.com.au]
Sent: Tuesday, 6 February 2018 4:31 PM
To: Shirley LeCornu <shirley.lecornu@alsglobal.com>
Cc: Carly Clark <Carly.Clark@semf.com.au>
Subject: 4193.005 COC for resampled test pits

Hi Shirley,

Resampled soils being sent to you today.

Thank you,
Cheers,
Fiona

Regards,

Fiona Keserue-Ponte
Principal Environmental Scientist

40 Molle Street, Hobart TAS 7000

T 03 6212 4400 **D** 03 6212 4414
F 03 6212 4475 **E** Fiona.Keserue-Ponte@semf.com.au
M 0417 523 625 **W** www.semf.com.au

Please consider the environment before printing this email.

FREIGHT

CHAIN OF CUSTODY

ALS Laboratory: please tick →

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☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

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☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: SEMF Pty. Ltd.	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	✠ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI	ALS QUOTE NO.: EN-222-17 and ME/463/17	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 4193.005		OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	CONTACT PH: 0417 523 625		Other comments:
SAMPLER: Fiona Keserue-Ponte	SAMPLER MOBILE: 0417 523 625	RELINQUISHED BY: *Fiona Keserue-Ponte*	RECEIVED BY:
COC emailed to ALS? (YES)	EDD FORMAT (or default):	DATE/TIME: 7pm 1/2/2018	DATE/TIME:
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@semf.com.au		RECEIVED BY:	RELINQUISHED BY:
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@semf.com.au		DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).														Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-4 SG (TRH (C6-C40 + BTEXN)	S-7 (TRH (C6-C4-) / BTEXN / PAH	S-7 SG (TRH (C6-C40) / BTEXN / PAH	S-24 (TRH (C6-C4-) / BTEXN / PAH plus Phenols		S-3 (15 Metals NEPM suite)	P-22 (NEPM screen for soil Classification)		S-12 (OC & OP pesticides)	EP 202 (Phenoxy acid herbicides)	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)	w-18 (TRC C6-c10) + btoxn		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	Triplicate 3	1/02/2018	S	JAR, ICE	1			√		√		√									
2	Rinsate auger	1/02/2018	W	bottles	4												√	√			
3	TB2	1/02/2018	W	bottle	1														√		
4	Duplicate 3	1/02/2018	S	JAR, ICE	1					√		√									
5	rinsate excavator	1/02/2018	W	bottles	4												√	√			
6	Triplicate 5	1/02/2018	S	JAR, ICE	1					√		√			√	√					
7	T13-01	1/02/2018	S	JAR, ICE	1			√				√									
8	T13-02	1/02/2018	S	JAR, ICE	1			√				√									
9	T15-01	1/02/2018	S	JAR, ICE	1					√		√									
10	T15-02	1/02/2018	S	JAR, ICE	1					√		√									
11	T15-03	1/02/2018	S	JAR, ICE	1					√		√									
12	T15-04	1/02/2018	S	JAR, ICE	1					√		√									
13	T15-05	1/02/2018	S	JAR, ICE	1					√		√									
14	T15-06	1/02/2018	S	JAR, ICE	1					√		√									
15	T15-07	1/02/2018	S	JAR, ICE	1					√		√									
16	T15-08	1/02/2018	S	JAR, ICE	1					√		√									
17	T5-01	1/02/2018	S	JAR, ICE	1					√		√									
18	T5-02	1/02/2018	S	JAR, ICE	1					√		√									
19	T5-03	1/02/2018	S	JAR, ICE	1					√		√									
20	T5-04	1/02/2018	S	JAR, ICE	1					√		√									
21	T5-05	1/02/2018	S	JAR, ICE	1					√		√									
22	T5-06	1/02/2018	S	JAR, ICE	1					√		√									
				TOTAL	26																

Environmental Division Melbourne
Work Order Reference
EM1802479

Telephone : +61-3-8549 9600

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY

ALS Laboratory: please tick →

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☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: SEMF Pty. Ltd.	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	☒ Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT **(List due date):**	Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI	**ALS QUOTE NO.:** EN-222-17 and ME/463/17	**COC SEQUENCE NUMBER (Circle)**	Free Ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 4193.005		COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	**CONTACT PH:** 0417 523 625	OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Fiona Keserue-Ponte	**SAMPLER MOBILE:** 0417 523 625	**RELINQUISHED BY:** *Fiona Keserue-Ponte*	**RECEIVED BY:**
COC emailed to ALS? (YES)	**EDD FORMAT (or default):**	DATE/TIME: 7pm 1/2/2018	DATE/TIME:
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@semf.com.au		**RELINQUISHED BY:**	**RECEIVED BY:**
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@semf.com.au		DATE/TIME:	DATE/TIME: 2/2 11:05

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where **Metals** are required, specify **Total** (unfiltered bottle required) or **Dissolved** (field filtered bottle required).															Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-4 SG (TRH (C6-C40 + BTEXN)	S-7 (TRH (C8-C44) / BTEXN / PAH	S-7 SG (TRH (C8-C40) / BTEXN / PAH	S-24 (TRH (C6-C4) / BTEXN / PAH plus Phenols		S-3 (15 Metals NEPM suite)	P-22 (NEPM screen for soil Classification)		S-12 (OC & OP pesticides)	EP 202 (Phenoxy acid herbicides)	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)	w-18 (TRC C6-c10) + btexn		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
23	T5-07	1/02/2018	S	JAR, ICE	1					√		√									
24	T5-08	1/02/2018	S	JAR, ICE	1					√		√									
25	T5-09	1/02/2018	S	JAR, ICE	1					√		√			√	√					
26	T4-01	1/02/2018	S	JAR, ICE	1					√		√			√	√					
27	T4-02	1/02/2018	S	JAR, ICE	1					√		√			√	√					
28	T4-03	1/02/2018	S	JAR, ICE	1					√		√			√	√					
29	T4-04	1/02/2018	S	JAR, ICE	1					√		√			√	√					
30	T4-05	1/02/2018	S	JAR, ICE	1					√		√			√	√					
31	T14-01	1/02/2018	S	JAR, ICE	1					√		√									
32	T14-02	1/02/2018	S	JAR, ICE	1					√		√									
33	T14-03	1/02/2018	S	JAR, ICE	1					√		√									
34	T14-04	1/02/2018	S	JAR, ICE	1					√		√									
35	T6-01	1/02/2018	S	JAR, ICE	1					√					√	√					
36	T6-02	1/02/2018	S	JAR, ICE	1					√					√	√					
				TOTAL	14																

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Poorake SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

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☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: SEMF Pty. Ltd.	**TURNAROUND REQUIREMENTS :**	✠ Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000	(Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	☐ Non Standard or urgent TAT **(List due date):**	Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI	**ALS QUOTE NO.:** EN-222-17 and ME/463/17	COC SEQUENCE NUMBER (Circle)	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 4193.005		COC: 1 2 **3** 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	**CONTACT PH:** 0417 523 625	OF: 1 2 **3** 4 5 6 7	Other comment:
SAMPLER: Fiona Keserue-Ponte	**SAMPLER MOBILE:** 0417 523 625	**RELINQUISHED BY:**	**RECEIVED BY:**
COC emailed to ALS? (YES)	**EDD FORMAT (or default):**	*Fiona Keserue-Ponte*	
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@semf.com.au		DATE/TIME: 4:30pm 2/2/2018	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@semf.com.au			

RELINQUISHED BY:	**RECEIVED BY:**
DATE/TIME:	DATE/TIME: 11-Oct

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where **Metals** are required, specify **Total** (unfiltered bottle required) or **Dissolved** (field filtered bottle required).																Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-4 SG (TRH (C6-C40 + BTEXN)	S-7 (TRH (C6-C4-) / BTEXN / PAH	S-7 SG (TRH (C6-C40) / BTEXN / PAH	S-24 (TRH (C6-C4-) / BTEXN / PAH plus Phenols		S-3 (15 Metals NEPM suite)	P-22 (NEPM screen for soil Classification)		S-12 (OC & OP pesticides)	EP 202 (Phenoxy acid herbicides)	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)	w-18 (TRC C6-c10) + btexn		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
37	T11-01	1/02/2018	S	JAR, ICE	1					√											
38	T11-02	1/02/2018	S	JAR, ICE	1					√											
39	T11-03	1/02/2018	S	JAR, ICE	1					√											
40	T11-04	1/02/2018	S	JAR, ICE	1					√											
41	T11-05	1/02/2018	S	JAR, ICE	1					√											
42	T11-06	1/02/2018	S	JAR, ICE	1					√											
43	T11-07	1/02/2018	S	JAR, ICE	1					√											
44	T11-08	1/02/2018	S	JAR, ICE	1					√											
					TOTAL:	8															

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V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY

ALS Laboratory: please tick →

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☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: SEMF Pty. Ltd.	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	☒ Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (Circle):**
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT **(List due date):**	Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI	**ALS QUOTE NO.:** EN-222-17 and ME/463/17	**COC SEQUENCE NUMBER (Circle)**	Free Ice / frozen Ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 4193.005		COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	**CONTACT PH:** 0417 523 625	OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Fiona Keserue-Ponte	**SAMPLER MOBILE:** 0417 523 625		
COC emailed to ALS? (YES)	**EDD FORMAT (or default):**		
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@semf.com.au			
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@semf.com.au			

RELINQUISHED BY:	**RECEIVED BY:**	**RELINQUISHED BY:**	**RECEIVED BY:**
Fiona Keserue-Ponte			
DATE/TIME: 4:30pm 2/2/2018	DATE/TIME:	DATE/TIME:	DATE/TIME: 5/2 1605

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where **Metals** are required, specify **Total** (unfiltered bottle required) or **Dissolved** (field filtered bottle required).

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		S-4 (TRH (C6-C40 + BTEXN)	S-4 SG (TRH (C6-C40 + BTEXN)	S-7 (TRH (C6-C4-) / BTEXN / PAH	S-7 SG (TRH (C6-C40) / BTEXN / PAH	S-24 (TRH (C6-C4-) / BTEXN / PAH plus Phenols		S-3 (15 Metals NEPM suite)	P-22 (NEPM screen for soil Classification)	w-24 (TRH (C6-C4-) / BTEXN / PAH plus Phenols	S-12 (OC & OP pesticides)	EP 202 (Phenoxy acid herbicides)	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)	w-18 (TRC C6-c10) + btexn		Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS																
1	T2-WALL1	2/02/2018	S	JAR, ICE	1			√				√									
2	T2-WALL2	2/02/2018			1			√				√									
3	T2-WALL3	2/02/2018			1			√				√									
4	T2-WALL4	2/02/2018			1			√				√									
5	T2-BASE	2/02/2018			1			√				√									
6	T3-FUEL LINE	2/02/2018			1					√											
7	T3-BOWSER BASE	2/02/2018			1					√											
8	BACKFILL SAND	2/02/2018			1					√											SLIGHTLY CONTAMINATED WITH
9	T3 STOCKPILE 1	2/02/2018			1					√											
10	T3 STOCKPILE 2	2/02/2018			1					√											
11	T3-WALL 1	2/02/2018			1					√											
12	T3-WALL 2	2/02/2018			1					√											
13	T3-WALL 3	2/02/2018			1					√											
14	T3-WALL 4	2/02/2018			1					√											
15	T3-BASE	2/02/2018			1					√											
16	T3 WASTE SOIL	2/02/2018			1					√											LIGHTLY CONTAMINATED WITH DIESE
17	TRIPLICATE 7	2/02/2018			1			√				√									
18	DUPLICATE 1 (2/2/18)	2/02/2018			1					√											LIGHTLY CONTAMINATED WITH DIESE
19	RINSATE EXCAVATOR BUCKET	2/02/2018			4										√						
20	RINSATE TROWEL (2/2/2018)	2/02/2018			4										√						
21	TANK WATER	2/02/2018			4										√				√		LIGHTLY CONTAMINATED WITH DIESE
22	TRIP BLANK	2/02/2018	W	BOTTLE	1															√	
				TOTAL	26																

Environmental Division
Melbourne
Work Order Reference
EM1802495

Telephone : +61-3-8549 9600

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Shirley LeCornu

From: Fiona Keserue-Ponte <Fiona.Keserue-Ponte@semf.com.au>
Sent: Friday, 2 February 2018 11:17 PM
To: Shirley LeCornu
Subject: 4193.005 - COCs - 2 ESKIES
Attachments: COC 1Feb2018p1.xls; COC 1Feb2018p2.xls; COC 1Feb2018p3.xls; COC 2Feb2018p1.xls

Hi Shirley,

Two eskies were sent to ALS today by Tasfast, picked up at different locations, so not sure if they will come together.

The COCs for all samples from both eskies are attached. I have grouped samples in the COCs by sampling date, not by esky.

So please check both eskies to reconcile COCs with samples.

I may be out of range on Monday, so hopefully there are no issues. If urgent, contact Carly, otherwise I'll be available Tuesday.

There is one more esky of samples which will be sent on Tuesday, or Wednesday for this job, then that should hopefully be it. I'll also send back some of the excess 'extras' from ALS (will keep some as back up, as its always useful for those urgent jobs).

Thank you,
Fiona

Regards,

Fiona Keserue-Ponte
Principal Environmental Scientist

40 Molle Street, Hobart TAS 7000

T 03 6212 4400 **D** 03 6212 4414
F 03 6212 4475 **E** Fiona.Keserue-Ponte@semf.com.au
M 0417 523 625 **W** www.semf.com.au

Please consider the environment before printing this email.

FREIGHT

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NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
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WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: SEMF Pty. Ltd.	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	✠ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI	ALS QUOTE NO.: EN-222-17 and ME/463/17	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 4193.005		OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	CONTACT PH: 0417 523 625		Other comment:
SAMPLER: Fiona Keserue-Ponte	SAMPLER MOBILE: 0417 523 625	RELINQUISHED BY: *Fiona Keserue-Ponte*	RECEIVED BY:
COC emailed to ALS? (YES)	EDD FORMAT (or default):	DATE/TIME: 9am 21/2/2018	DATE/TIME:
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@semf.com.au		RECEIVED BY:	RELINQUISHED BY:
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@semf.com.au		DATE/TIME:	DATE/TIME:
		RELINQUISHED BY:	RECEIVED BY: [signature]
		DATE/TIME:	DATE/TIME: 22/2 10:05

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).														Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-4 SG (TRH (C6-C40 + BTEXN)	S-7 (TRH (C6-C4-) / BTEXN / PAH	S-7 SG (TRH (C6-C4-) / BTEXN / PAH	S-25 (TRH (C6-C40) / BTEXN / PAH / Phenols + Pb		S-3 (15 Metals NEPM suite)	P-22 (NEPM screen for soil Classification)		S-12 (OC & OP pesticides)	EP 202 (Phenoxy acid herbicides)	W-25 (TRH (C6-C40 + BTEXN+PAH +phenols +Pb)	W-3 (15 Metals NEPM suite)	w-18 (TRC C6-c10) + btexn	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	TP6-water	20/02/2018	W	BOTTLES	4												√	√		
2	T3-rainwater	20/02/2018	W	BOTTLES	4												√	√		
3	trip blank	20/02/2018	W	BOTTLE	1														√	
4	triplicate 1	20/02/2018	S	JAR, ICE	1					√										
5	triplicate 3	20/02/2018	S	JAR, ICE	1					√										
6	duplicate 1	20/02/2018	S	JAR, ICE	1					√										
7	duplicate 2	20/02/2018	S	JAR, ICE	1					√										
8	T1-01	20/02/2018	S	JAR, ICE	1					√										
9	T1-02	20/02/2018	S	JAR, ICE	1					√										
10	T1-03	20/02/2018	S	JAR, ICE	1					√										
11	T1-04	20/02/2018	S	JAR, ICE	1					√										
12	T1-05	20/02/2018	S	JAR, ICE	1					√										
13	T1-06	20/02/2018	S	JAR, ICE	1					√										
14	T1-07	20/02/2018	S	JAR, ICE	1					√										
15	T1-08	20/02/2018	S	JAR, ICE	1					√										
16	T1-09	20/02/2018	S	JAR, ICE	1					√										
17	T1-10	20/02/2018	S	JAR, ICE	1					√										
18	T1-11	20/02/2018	S	JAR, ICE	1					√										
19	T1-12	20/02/2018	S	JAR, ICE	1					√										
20	T1-13	20/02/2018	S	JAR, ICE	1					√										
21	T1-14	20/02/2018	S	JAR, ICE	1					√										
22																				
				TOTAL	27															

Environmental Division
Melbourne
Work Order Reference
EM1803452

Telephone : + 61-3-8549 9600

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Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

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☐TOWNSVILLE 14-16 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: SEMF Pty. Ltd.	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	☒ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI	ALS QUOTE NO.: EN-222-17 and ME/463/17	COC SEQUENCE NUMBER (Circle)	Free Ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 4193.005		COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	CONTACT PH: 0417 523 625	OF: 1 2 3 4 5 6 7	Other comments:
SAMPLER: Fiona Keserue-Ponte	SAMPLER MOBILE: 0417 523 625	RELINQUISHED BY:	RECEIVED BY:
COC emailed to ALS? (YES)	EDD FORMAT (or default):	*Fiona Keserue-Ponte*	
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@semf.com.au		DATE/TIME: 9am 21/2/2018	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@semf.com.au			

RELINQUISHED BY:	RECEIVED BY:
DATE/TIME:	DATE/TIME: 21/2 10 05

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).														Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-4 SG (TRH (C6-C40 + BTEXN)	S-7 (TRH (C6-C4-) / BTEXN / PAH	S-7 SG (TRH (C6-C4-) / BTEXN / PAH	S-25 (TRH (C6-C40) / BTEXN / PAH / Phenols + Pb		S-3 (15 Metals NEPM suite)	P-22 (NEPM screen for soil Classification)		S-12 (OC & OP posticides)	EP 202 (Phenoxy acid herbicides)	W-25 (TRH (C6-C40 + BTEXN+PAH +phenols +Pb)	W-3 (15 Metals NEPM suite)	w-18 (TRC C6-c10) + btexn		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
22	DT1	20/02/2018	S	JAR, ICE	1					√										
23	DT2	20/02/2018	S	JAR, ICE	1					√										
24	A1	20/02/2018	S	JAR, ICE	1					√										
25	A3-1	20/02/2018	S	JAR, ICE	1					√										
26	A3-2	20/02/2018	S	JAR, ICE	1					√										
29	A4	20/02/2018	S	JAR, ICE	1					√										
28	B1	20/02/2018	S	JAR, ICE	1					√										
29	B5	20/02/2018	S	JAR, ICE	1					√										
30	B12-1	20/02/2018	S	JAR, ICE	1					√										
31	B12-2	20/02/2018	S	JAR, ICE	1					√										
32	B12-3	20/02/2018	S	JAR, ICE	1					√										
33	B16	20/02/2018	S	JAR, ICE	1					√										
34	B20	20/02/2018	S	JAR, ICE	1					√										
				TOTAL	13															

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

FREIGHT

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com
☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: COVA THINKING Pty Ltd	TURNAROUND REQUIREMENTS :		FOR LABORATORY USE ONLY (Circle)
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):		Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI	ALS QUOTE NO.: EN-222-17	COC SEQUENCE NUMBER (Circle)	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 4193.005		COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	CONTACT PH: 0417 523 625	OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Fiona Keserue-Ponte	SAMPLER MOBILE: 0417 523 625	RELINQUISHED BY:	RECEIVED BY:
COC emailed to ALS? (YES)	EDD FORMAT (or default):	*Fiona Keserue-Ponte*	Rm IM
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com		DATE/TIME: 12noon - 24/4/2018	DATE/TIME: 26/4/18 @ 11.40a
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com		RELINQUISHED BY:	RECEIVED BY:
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:		DATE/TIME:	DATE/TIME:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).		Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	EA 200 B (presence / absence of asbestos in solid sample	EA156 - friability test	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	ACM1	31/01/2018	fragment	double bagged in zip lock plactic bag	1	X	X	
2	ACM2	31/01/2018	fragment	double bagged in zip lock plactic bag	1	X	X	
3	ACM3	31/01/2018	fragment	double bagged in zip lock plactic bag	1	X	X	
				TOTAL	3			

Environmental Division
Melbourne
Work Order Reference
EM1806900

Telephone : + 61-3-8549 9600

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Shirley LeCornu

From: Fiona Keserue-Ponte <Fiona.Keserue-Ponte@covathinking.com>
Sent: Thursday, 26 April 2018 9:02 AM
To: Shirley LeCornu
Cc: Carly Clark
Subject: 4193.005 COC for ACM1 to ACM3 samples
Attachments: COC ACM 4193.005.xls

Hi Shirley,

I sent 3 pieces of potential asbestos sheeting to you on Tuesday.

The COC is attached.

Thank you,
Fiona

Fiona Keserue-Ponte
Principal Environmental Scientist

COVA
Stronger Together

40 Molle Street, Hobart TAS 7000

O +61 3 6212 4400 E Fiona.Keserue-Ponte@covathinking.com
M +61 417 523 625 W www.covathinking.com

FREIGHT

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT:	COVA Thinking Pty Ltd	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	☒ Standard TAT (List due date):
OFFICE:	5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT (List due date):
PROJECT:	Oatlands DSI - Remediation	ALS QUOTE NO.:	EN-222-17 and ME/463/17
ORDER NUMBER:	4193.005		
PROJECT MANAGER:	Fiona Keserue-Ponte	CONTACT PH:	0417 523 625
SAMPLER:	Fiona Keserue-Ponte	SAMPLER MOBILE:	0417 523 625
COC emailed to ALS? (YES)		EDD FORMAT (or default):	
Email Reports to (will default to PM if no other addresses are listed):	fiona.keserue-ponte@covathinking.com		
Email Invoice to (will default to PM if no other addresses are listed):	fiona.keserue-ponte@covathinking.com		

COC SEQUENCE NUMBER (Circle)

COC: 1 2 3 4 5 6 7

OF: 1 2 3 4 5 6 7

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt °C

Other Comments:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Fiona Keserue-Ponte			
DATE/TIME: 31/5/2018 6pm	DATE/TIME:	DATE/TIME:	DATE/TIME: 4/6, 10:00

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).									Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-3 (15 Metals NEPM suite)	W-18 (TRC C6-C10) + btexn	EA200 - 50g presence / absence of free fibres	EA200B - asbestos in bulk solids (potential bonded ACM)	EA156 - Friability test on bulk solids WHERE DETECTED	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	trip blank	30/05/2018	W	bottle	1			√							
2	TP10V-01	30/05/2018	s	JAR, ICE	1	√									
3	TP10V-02	30/05/2018	S	JAR, ICE	1	√									
4	TP10V-03	30/05/2018	S	JAR, ICE	1	√									
5	TP10V-04	30/05/2018	S	JAR, ICE	1	√									
6	TP10V-05	30/05/2018	S	JAR, ICE	1	√									
7	TP10V-06	30/05/2018	S	JAR, ICE	1	√									
8	tripl 1 30.5	30/05/2018	S	JAR, ICE	1	√									
—	**Tripl 2 30.5**	**305/2018**	**S**	**JAR, ICE**	**1**										
9	TP10V-07	30/05/2018	S	JAR, ICE	1	√									
10	TP10V-08	30/05/2018	S	JAR, ICE	1	√									
11	TP10V-09	30/05/2018	S	JAR, ICE	1	√									
12	TP10V-10	30/05/2018	S	JAR, ICE	1	√									
13	TP10V-11	30/05/2018	S	JAR, ICE	1	√									
14	TP10V-12	30/05/2018	S	JAR, ICE	1	√									
15	TP10V-13	30/05/2018	S	JAR, ICE	1	√									
16	TP10V-14	30/05/2018	S	JAR, ICE	1	√									
17	TP10V-15	30/05/2018	S	JAR, ICE	1	√									
18	TP10V-16	30/05/2018	S	JAR, ICE	1	√									
19	TP10V-17	30/05/2018	S	JAR, ICE	1	√									
20	TP10V-18	30/05/2018	S	JAR, ICE	1	√									
				TOTAL	20										

PLEASE TRANSFER TO EUROFINS

SCANNED

Environmental Division
Melbourne
Work Order Reference
EM1808830

Telephone : - 61-3-8 549 9600

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Air V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Forwarded to Secondary Lab
Initials NB Date 4/6

NB 4/6

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: COVA Thinking Pty Ltd	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	✠ Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (Circle)** Custody Seal Intact? Yes No N/A
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT **(List due date):**	Freezing/cooling completed on arrival? Yes No N/A
PROJECT: Oatlands DSI - Remediation	**ALS QUOTE NO.:** EN-222-17 and ME/463/17	**COC SEQUENCE NUMBER (Circle)** COC: 1 2 3 4 5 6 7	Random Sample Temperature on receipt
ORDER NUMBER: 4193.005		OF: 1 2 3 4 5 6 7	Other comments:
PROJECT MANAGER: Fiona Keserue-Ponte	**CONTACT PH:** 0417 523 625		
SAMPLER: Fiona Keserue-Ponte	**SAMPLER MOBILE:** 0417 523 625	**RELINQUISHED BY:**	**RECEIVED BY:**
COC emailed to ALS? (YES)	**EDD FORMAT (or default):**	*Fiona Keserue-Ponte*	
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com		DATE/TIME: 31/5/2018 6pm	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com			

RELINQUISHED BY:	**RECEIVED BY:**
	DATE/TIME: 4/6 10:50

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: **Friability testing on ACM is only required if detected**

ALS USE	SAMPLE DETAILS (MATRIX: SOLID (S) WATER (W))			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where **Metals** are required, specify **Total** (unfiltered bottle required) or **Dissolved** (field filtered bottle required).									Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-3 (15 Metals NEPM suite)	w-18 (TRC C6-c10) + btexn	EA200 - 50g presence / absence of free fibres	EA200B - asbestos in bulk solids (potential bonded (ACM)	EA156 - Friability test on bulk solids WHERE DETECTED	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)		
21	TP10V-19	31/05/2018	S	JAR, ICE	1	√									
22	TP10V-20	31/05/2018	S	JAR, ICE	1	√									
23	TP10V-21	31/05/2018	S	JAR, ICE	1	√									
24	FILL1	31/05/2018	S	1 bulk plastic bag and 1 small zip lock bag & jar	3		√		√	√	√				
25	FILL2	31/05/2018	S	1 bulk plastic bag and 1 small zip lock bag & jar	3		√		√	√	√				
26	FILL3	31/05/2018	S	1 bulk plastic bag and 1 small zip lock bag & jar	3		√		√	√	√				
27	FILL4	31/05/2018	S	1 bulk plastic bag and 1 small zip lock bag & jar	3		√		√	√	√				
28	FILL5	31/05/2018	S	1 bulk plastic bag and 1 small zip lock bag & jar	3		√		√	√	√				
29	FILL6	31/05/2018	S	1 bulk plastic bag and 1 small zip lock bag & jar	3		√		√	√	√				
30	FILL7	31/05/2018	S	1 bulk plastic bag and 1 small zip lock bag & jar	3		√		√	√	√				
31	FILL8	31/05/2018	S	1 bulk plastic bag and 1 small zip lock bag & jar	3		√		√	√	√				
32	ACM-SP1	31/05/2018	S	1 bulk plastic bag & 1 jar	2		√			√					
33	SP-MET	28/05/2018	S	1 bulk plastic bag	1					√					
				TOTAL	30										

NOTE 50g bags have been mistakenly despatched with the next batch which should arrive on Tuesday

only presence or absence needed for waste disposal classification

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Shirley LeCornu

From: Fiona Keserue-Ponte <Fiona.Keserue-Ponte@covathinking.com>
Sent: Monday, 4 June 2018 10:03 AM
To: Shirley LeCornu
Cc: Carly Clark
Subject: 4193.005 COCs

Hi Shirley,

A batch of samples sent to you on Friday should reach you today. The batch includes 10 x bulk soil bags and 1 esky. Please note that:

- One triplicate sample needs to be transferred to Eurofins;
- The 10 x 50g fibre samples are being despatched today (I forgot to include them with Friday's batch, sorry);
- I will send the COC shortly.

One more esky is being sent today. It also includes one triplicate to be transferred to Eurofins. I will also send that COC shortly.

Thank you,
Fiona

Fiona Keserue-Ponte
Principal Environmental Scientist

COVA
Stronger Together

40 Molle Street, Hobart TAS 7000
O +61 3 6212 4400 E Fiona.Keserue-Ponte@covathinking.com
M +61 417 523 625 W www.covathinking.com

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-04 TRH/BTEXN
EM1808830-002	30-May-2018 00:00	TP10V-01		✓			✓
EM1808830-003	30-May-2018 00:00	TP10V-02		✓			✓
EM1808830-004	30-May-2018 00:00	TP10V-03		✓			✓
EM1808830-005	30-May-2018 00:00	TP10V-04		✓			✓
EM1808830-006	30-May-2018 00:00	TP10V-05		✓			✓
EM1808830-007	30-May-2018 00:00	TP10V-06		✓			✓
EM1808830-008	30-May-2018 00:00	Trip1.1 30.5		✓			✓
EM1808830-009	30-May-2018 00:00	TP10V-07		✓			✓
EM1808830-010	30-May-2018 00:00	TP10V-08		✓			✓
EM1808830-011	30-May-2018 00:00	TP10V-09		✓			✓
EM1808830-012	30-May-2018 00:00	TP10V-10		✓			✓
EM1808830-013	30-May-2018 00:00	TP10V-11		✓			✓
EM1808830-014	30-May-2018 00:00	TP10V-12		✓			✓
EM1808830-015	30-May-2018 00:00	TP10V-13		✓			✓
EM1808830-016	30-May-2018 00:00	TP10V-14		✓			✓
EM1808830-017	30-May-2018 00:00	TP10V-15		✓			✓
EM1808830-018	30-May-2018 00:00	TP10V-16		✓			✓
EM1808830-019	30-May-2018 00:00	TP10V-17		✓			✓
EM1808830-020	30-May-2018 00:00	TP10V-18		✓			✓
EM1808830-021	30-May-2018 00:00	TP10V-19		✓			✓
EM1808830-022	30-May-2018 00:00	TP10V-20		✓			✓
EM1808830-023	30-May-2018 00:00	TP10V-21		✓			✓
EM1808830-024	30-May-2018 00:00	FILL1		✓	✓	✓	
EM1808830-025	30-May-2018 00:00	FILL2		✓	✓	✓	
EM1808830-026	30-May-2018 00:00	FILL3		✓	✓	✓	
EM1808830-027	30-May-2018 00:00	FILL4		✓	✓	✓	
EM1808830-028	30-May-2018 00:00	FILL5		✓	✓	✓	
EM1808830-029	30-May-2018 00:00	FILL6		✓	✓	✓	
EM1808830-030	30-May-2018 00:00	FILL7		✓	✓	✓	
EM1808830-031	30-May-2018 00:00	FILL8		✓	✓	✓	
EM1808830-032	30-May-2018 00:00	ACM-SP1		✓	✓	✓	
EM1808830-033	30-May-2018 00:00	SP-MET	✓		✓		

509
10kg
Soil EA200 Asbestos presence or absence of free fibres

Ryan ODonnell

To: Peter Ravlic
Subject: RE: EM1808830

From: Fiona Keserue-Ponte [mailto:Fiona.Keserue-Ponte@covathinking.com]
Sent: Thursday, 7 June 2018 10:26 AM
To: Peter Ravlic <peter.ravlic@alsglobal.com>; Samples Newcastle <samples.newcastle@alsglobal.com>; ALSEnviro Newcastle <ALSEnviro.Newcastle@ALSGlobal.com>
Cc: Samples Melbourne <Samples.Melbourne@alsglobal.com>; Shirley LeCornu <shirley.lecornu@alsglobal.com>; Carly Clark <Carly.Clark@covathinking.com>
Subject: RE: EM1808830

Hi Peter,

It's ok for this batch.

I will liaise with Shirley for future batches as previous work on bulk soil samples for asbestos testing was done differently I think.

Cheers,
Fiona

From: Peter Ravlic [mailto:peter.ravlic@alsglobal.com]
Sent: Thursday, 7 June 2018 10:20 AM
To: Samples Newcastle <samples.newcastle@alsglobal.com>; Fiona Keserue-Ponte <Fiona.Keserue-Ponte@covathinking.com>; ALSEnviro Newcastle <ALSEnviro.Newcastle@ALSGlobal.com>
Cc: Samples Melbourne <Samples.Melbourne@alsglobal.com>; Shirley LeCornu <shirley.lecornu@alsglobal.com>; Carly Clark <Carly.Clark@covathinking.com>
Subject: RE: EM1808830

Hi Fiona

Can you please confirm that you are happy with the below costs outlined by ALS Newcastle

Thanks

Regards

Peter Ravlic

Client Services – Springvale

Environmental

T +61 3 8549 9600
F +61 3 8549 9626
Peter.Ravlic@alsglobal.com
2-4 Westall Rd
Springvale Vic 3171
Australia

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From: Kristy McMahon **On Behalf Of** Samples Newcastle
Sent: Wednesday, 6 June 2018 1:14 PM
To: Fiona Keserue-Ponte <Fiona.Keserue-Ponte@covathinking.com>; ALSEnviro Newcastle <ALSEnviro.Newcastle@ALSGlobal.com>
Cc: Samples Newcastle <samples.newcastle@alsglobal.com>; Samples Melbourne <Samples.Melbourne@alsglobal.com>; Peter Ravlic <peter.ravlic@alsglobal.com>; Shirley LeCornu <shirley.lecornu@alsglobal.com>; Carly Clark <Carly.Clark@covathinking.com>
Subject: RE: EM1808830

Hi Fiona,

Thanks for the information/clarification.

In regards to the sieving fee, the $60/hr refers to sieving as part of the analysis cost. For any samples where ACM is not found and further testing is not completed these samples will need to be charged at $100/sample as we are not a preparation laboratory.

Regards,

Kristy McMahon
Sample Receipt Supervisor, Newcastle
NSW

T +61 2 4014 2500 D +61 2 4014 2503
F +61 2 4967 7382
kristy.mcmahon@alsglobal.com
5/585 Maitland Road
Mayfield West NSW 2304

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From: Fiona Keserue-Ponte [mailto:Fiona.Keserue-Ponte@covathinking.com]
Sent: Wednesday, 6 June 2018 12:04 PM
To: ALSEnviro Newcastle <ALSEnviro.Newcastle@ALSGlobal.com>
Cc: Samples Newcastle <samples.newcastle@alsglobal.com>; Samples Melbourne <Samples.Melbourne@alsglobal.com>; Peter Ravlic <peter.ravlic@alsglobal.com>; Shirley LeCornu <shirley.lecornu@alsglobal.com>; Carly Clark <Carly.Clark@covathinking.com>
Subject: RE: EM1808830

Hi Kristy,

Please find attached a copy of page 34 of our blanket Quote (note that COVA is the rebranded name for SEMF Pty Ltd).

I have highlighted the sieving line which is costed at $60/hr. After drying, I would expect the samples can be sieved in less than an hour.

Further responses in blue below.

Thank you,
Fiona

From: ALSEnviro Newcastle [mailto:ALSEnviro.Newcastle@ALSGlobal.com]
Sent: Wednesday, 6 June 2018 11:50 AM
To: Fiona Keserue-Ponte <Fiona.Keserue-Ponte@covathinking.com>
Cc: Samples Newcastle <samples.newcastle@alsglobal.com>; Samples Melbourne <Samples.Melbourne@alsglobal.com>; Peter Ravlic <peter.ravlic@alsglobal.com>; ALSEnviro Newcastle <ALSEnviro.Newcastle@ALSGlobal.com>
Subject: RE: EM1808830

Hi Fiona,

I've spoken with the lab to clarify the best way to meet your requirements as discussed over the phone and just wanted to discuss/clarify some other items with you.

The lab can sieve the samples as you mentioned, however we need to let you know there will be a $100/sample fee involved with this. Please refer to above

The lab will then test any ACM found in each sample (EA200B + EA156 Friability), and if positive also test the smaller bag of soil provided by you for the corresponding sample (which will be placed on hold until such time). Could you please confirm this is correct? Correct ☺

Could you also please confirm if you would like EA200F (quantification) or just EA200 (absence/presence) on the small bags of soil if we do test these? Just presence / absence

Regards,

Kristy McMahon
Sample Receipt Supervisor, Newcastle
NSW

T +61 2 4014 2500 **D** +61 2 4014 2503
F +61 2 4967 7382
kristy.mcmahon@alsglobal.com
5/585 Maitland Road
Mayfield West NSW 2304

From: Peter Ravlic
Sent: Wednesday, 6 June 2018 9:08 AM
To: ALSEnviro Newcastle <ALSEnviro.Newcastle@ALSGlobal.com>

Cc: Samples Newcastle <samples.newcastle@alsglobal.com>; Samples Melbourne <Samples.Melbourne@alsglobal.com>
Subject: EM1808830

Hi Team

We are sending the attached samples to Newcastle for asbestos (samples 24-33) which you will receive tomorrow

Can you please contact Fiona on 0417 523 625 to clarify the asbestos analysis as we are not sure how the client needs the samples analysed

I did contact Fiona and she did mention that these need to go to Newcastle for analysis but I am still unsure of what we need to log as all samples are soil but the client has also requested bulk analysis.

I just want to make sure you guys analyse these samples correctly so if you can contact the client that would be great

Please let me know how we need to log the analysis. All samples have 2 bags (a small and large bag)

Thanks

Regards

Peter Ravlic

Client Services – Springvale

Environmental

T +61 3 8549 9600
F +61 3 8549 9626
Peter.Ravlic@alsglobal.com
2-4 Westall Rd
Springvale Vic 3171
Australia

FREIGHT

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT:	COVA Thinking Pty Ltd	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	✠ Standard TAT (List due date):
OFFICE:	5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT (List due date):
PROJECT:	Oatlands DSI - Remediation	ALS QUOTE NO.:	EN-222-17 and ME/463/17
ORDER NUMBER:	4193.005		
PROJECT MANAGER:	Fiona Keserue-Ponte	CONTACT PH: 0417 523 625	
SAMPLER:	Fiona Keserue-Ponte	SAMPLER MOBILE: 0417 523 625	
COC emailed to ALS? (YES)		EDD FORMAT (or default):	
Email Reports to (will default to PM if no other addresses are listed):	fiona.keserue-ponte@covathinking.com		
Email Invoice to (will default to PM if no other addresses are listed):	iona.keserue-ponte@covathinking.com		

COC SEQUENCE NUMBER (Circle)

COC:	1	2	3	4	5	6	7
OF:	1	2	3	4	5	6	7

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt		°C	
Other comment:			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Fiona Keserue-Ponte			Monica Tan
DATE/TIME: 29/5/2018 6pm	DATE/TIME:	DATE/TIME:	DATE/TIME: 31/5, 9:40

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).									Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-3 (15 Metals NEPM suite)	w-18 (TRC C6-c10) + btexn	EA200 - 50g presence / absence of free fibres	EA200B - asbestos in bulk solids (potential bonded ACM)	EA156 - Friability test on bulk solids WHERE DETECTED	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)		
												√	√		
1	rinsate-trowel	28/05/2018	W	BOTTLES	4										
2	trip blank	28/05/2018	W	bottle	1			√							
3	SV 1	28/05/2018	S	JAR, ICE	1	√									
4	SV2	28/05/2018	S	JAR, ICE	1	√									
5	SV3	28/05/2018	S	JAR, ICE	1	√									
6	SV4	28/05/2018	S	JAR, ICE	1	√									
7	SV5	28/05/2018	S	JAR, ICE	1	√									
8	SV6	28/05/2018	S	JAR, ICE	1	√									
9	Vtripl 1	28/05/2018	S	JAR, ICE	1	√									
~~10~~ 17	**Vtripl 2**	**28/05/2018**	**S**	**JAR, ICE**	1										
10	T14-03-v01	28/05/2018	S	JAR, ICE	1		√								
11	SP-MET	28/05/2018	S	JAR, ICE	1		√								
					TOTAL 15										

Environmental Division
Melbourne
Work Order Reference
EM1808910

Telephone : +61-3-8549 9600

PLEASE TRANSFER TO EUROFINS

Forwarded to Secondary Lab
Initials MR Date 1/6

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Shirley LeCornu

From: Fiona Keserue-Ponte <Fiona.Keserue-Ponte@covathinking.com>
Sent: Tuesday, 29 May 2018 7:54 PM
To: Shirley LeCornu
Subject: 4193.005 COC
Attachments: COC 28May2018p1.xls

Hi Shirley,

Please find COC attached for samples being sent to you on Wednesday.

Please note one sample should be transferred to Eurofins.

Thank you,
Fiona

Fiona Keserue-Ponte
Principal Environmental Scientist

COVA
Stronger Together

40 Molle Street, Hobart TAS 7000

O +61 3 6212 4400 E Fiona.Keserue-Ponte@covathinking.com
M +61 417 523 625 W www.covathinking.com

Forwarded to Secondary Lab
Initials NB Date 5/6

FREIGHT

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT:	COVA Thinking Pty Ltd	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	✠ Standard TAT (List due date): ☐ Non Standard or urgent TAT (List due date):
OFFICE:	5, 40 Molle Street, hobart, TAS, 7000		
PROJECT:	Oatlands DSI - Remediation	ALS QUOTE NO.:	EN-222-17 and ME/463/17
ORDER NUMBER:	4193.005		
PROJECT MANAGER:	Fiona Keserue-Ponte	CONTACT PH: 0417 523 625	
SAMPLER:	Fiona Keserue-Ponte	SAMPLER MOBILE: 0417 523 625	
COC emailed to ALS?	(YES)	EDD FORMAT (or default):	
Email Reports to (will default to PM if no other addresses are listed):	fiona.keserue-ponte@covathinking.com		
Email Invoice to (will default to PM if no other addresses are listed):	fiona.keserue-ponte@covathinking.com		

COC SEQUENCE NUMBER (Circle)

COC: 1 2 3 4 5 6 7

OF: 1 2 3 4 5 6 7

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No N/A

Freeze / Frozen Packs / Temperature Compliance? Yes No N/A

Random Sample Temperature on Receipt: 2.4 °C

Other comments:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Fiona Keserue-Ponte	Tom (ALS)		
DATE/TIME: 4/6/2018 9am	DATE/TIME: 11:10, 5-6-18	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-3 (15 Metals NEPM suite)	S-18 (TRC C6-c10) + btexn	EA200 - 50g presence / absence of free fibres	EA200B - asbestos in bulk solids (potential bonded ACM)	EA166 - Friability test on bulk solids WHERE DETECTED	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)	P20/1 (IB105)		
1	Tripl 2	1/06/2018	S	JAR, ICE	1									√		PLEASE TRANSFER TO EUROFINS
2	trip blank	1`/6/2018	s	jar	1			√								
3	Tripl 1	1`/6/2018	S	JAR, ICE	1	√										
4	C1	1`/6/2018	S	JAR, ICE	1	√										
5	C2	1`/6/2018	S	JAR, ICE	1	√										
6	C3	1`/6/2018	S	JAR, ICE	1	√										
7	C4	1`/6/2018	S	JAR, ICE	1	√										
8	E1	1`/6/2018	S	JAR, ICE	1									√		
9	D1	1`/6/2018	S	JAR, ICE	1									√		
10	D2	1`/6/2018	S	JAR, ICE	1									√		
11	D3	1`/6/2018	S	JAR, ICE	1									√		
12	D4	1`/6/2018	S	JAR, ICE	1									√		
	D5	1`/6/2018	S	JAR, ICE	1									√		
				TOTAL	13											

Environmental Division
Melbourne
Work Order Reference
EM1809075

Telephone : + 61-3-8549 9600

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Shirley LeCornu

From: Fiona Keserue-Ponte <Fiona.Keserue-Ponte@covathinking.com>
Sent: Monday, 4 June 2018 10:53 AM
To: Shirley LeCornu
Cc: Carly Clark
Subject: 4193.005 Batch 3 COC
Attachments: COC 1June2018p1.xls

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Shirley,

Attached COC for samples which you should receive tomorrow.

Again, please refer to earlier email.

Thank you,
Fiona

Fiona Keserue-Ponte
Principal Environmental Scientist

COVA
Stronger Together

40 Molle Street, Hobart TAS 7000

O +61 3 6212 4400 E Fiona.Keserue-Ponte@covathinking.com
M +61 417 523 625 W www.covathinking.com

FREIGHT

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
☐ BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
☐ GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
☐ MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
☐ MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
☐ MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
☐ NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com
☐ NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
☐ PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
☐ SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
☐ TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com
☐ WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: COVA Thinking Pty Ltd	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	✠ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI - Remediation	ALS QUOTE NO.: EN-222-17 and ME/463/17	COC SEQUENCE NUMBER (Circle)	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 4193.005		COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	CONTACT PH: 0417 523 625	OF: 1 2 3 4 5 6 7	Other comments:
SAMPLER: Fiona Keserue-Ponte	SAMPLER MOBILE: 0417 523 625	RELINQUISHED BY:	RECEIVED BY:
COC emailed to ALS? (YES)	EDD FORMAT (or default):	*Fiona Keserue-Ponte*	
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com		DATE/TIME: 22/6/2018 9am	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com		RELINQUISHED BY: DATE/TIME:	RECEIVED BY: DATE/TIME: 25/6 1120

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-3 (15 Metals NEPM suite)	S-18 (TRC C6-c10) + btexn	EA200 - 50g presence / absence of free fibres	EA200B - asbestos in bulk solids (potential bonded ACM)	EA156 - Friability test on bulk solids WHERE DETECTED	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)	P20/1 (IB105)	w-18 (TRC C6-c10) + btexn	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	trip blank	21/06/2018	w	bottle	1										√	Forwarded to Secondary Lab
2	Triplicate 1	21/06/2018	S	JAR, ICE	1	√										Initials Ph Date 26/5/18
3	Trench 1a	21/06/2018	S	JAR, ICE	1	√										
4	Trench 1b	21/06/2018	S	JAR, ICE	1	√										
5	Trench 2a	21/06/2018	S	JAR, ICE	1	√										
6	Trench 3a	21/06/2018	S	JAR, ICE	1	√										
7	Trench 3b	21/06/2018	S	JAR, ICE	1	√										
8	Trench 3c	21/06/2018	S	JAR, ICE	1	√										
9	Trench 4a	21/06/2018	S	JAR, ICE	1	√										
10	Trench 4b	21/06/2018	S	JAR, ICE	1	√										
→	Triplicate 2	21/06/2018	S	JAR, ICE	1											PLEASE TRANSFER TO EUROFINS
				TOTAL	11											

Environmental Division Melbourne
Work Order Reference
EM1810131

Telephone : + 61-3-8549 9600

25/6/18

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

FREIGHT

Samples received without CoC

CLIENT / SENDER:	COVA Thirlemere
PROJECT:	4193.005
CONTACT NAME:	
CONTACT NUMBER:	
CARRIER:	TNT Fast
CONNOTE REFERENCE:	737205
SAMPLER:	FKP
NUMBER OF SAMPLES/MATRIX:	Lapstone Soils
Client services notified by:	

COC SEQUENCE NUMBER (Circle)

COC:	1	2	3	4	5	6	7
OF:	1	2	3	4	5	6	7

SAMPLES RECEIVED BY: [signature] (ATM)

DATE/TIME: 14/9, 9-45

ANALYSIS RECEIVED BY:

DATE/TIME:

Comments

Environmental Division
Melbourne
Work Order Reference
EM1814835

Telephone : +61-3-8549 9600

LAB ID	SAMPLE DETAILS: SAMPLE ID	DATE	MATRIX	NUMBER OF CONTAINERS	Additional Information
					Forwarded to Secondary Lab Initials AN Date 17/9
			TOTAL		

COC Received at 12:33 14/9

CHAIN OF CUSTODY

ALS Laboratory: please tick →

ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com
NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com
WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: COVA Thinking Pty Ltd	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	✠ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI	ALS QUOTE NO.: EN-222-17 and ME/463/17	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Free Ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 4193.005		OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	CONTACT PH: 0417 523 625		Other comment:
SAMPLER: Fiona Keserue-Ponte	SAMPLER MOBILE: 0417 523 625	RELINQUISHED BY: *Fiona Keserue-Ponte*	RECEIVED BY:
COC emailed to ALS? (YES)	EDD FORMAT (or default):	DATE/TIME: 10am 13/9/2018	DATE/TIME:
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com		RECEIVED BY:	RELINQUISHED BY:
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com		DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: **TR6-SP1 is contaminated and will higher TRH/BTEXN - others should have little to no detections**

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).														Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-4 SG (TRH (C6-C40 + BTEXN)	S-7 (TRH (C6-C4-) / BTEXN / PAH	S-7 SG (TRH (C6-C4-) / BTEXN / PAH	S-24 (TRH (C6-C4-) / BTEXN / PAH plus Phenols		S-3 (15 Metals NEPM suite)	P-22 (NEPM screen for soil Classification)		S-12 (OC & OP pesticides)	EP 202 (Phenoxy acid herbicides)	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)	w-18 (TRC C6-c10) + btexn	
	Triplicate 2 (see comment)																			Please send to Eurofins
1	trip blank	12/09/2018	W	BOTTLE	1														√	
2	triplicate 1	12/09/2018	S	JAR, ICE	1	√						√								
3	duplicate 1	12/09/2018	S	JAR, ICE	1	√						√								
4	TR5-01	12/09/2018	S	JAR, ICE	1	√						√								
5	TR5-02	12/09/2018	S	JAR, ICE	1		√					√								
6	TR5-03	12/09/2018	S	JAR, ICE	1	√						√								
7	TR5-04	12/09/2018	S	JAR, ICE	1	√						√								
8	TR5-05	12/09/2018	S	JAR, ICE	1		√					√								
9	TR6-01	12/09/2018	S	JAR, ICE	1	√						√								
10	TR6-02	12/09/2018	S	JAR, ICE	1		√					√								
11	TR6-03	12/09/2018	S	JAR, ICE	1	√						√								
12	TR6-04	12/09/2018	S	JAR, ICE	1	√						√								
13	TR6-05	12/09/2018	S	JAR, ICE	1	√						√								
14	TR6-06	12/09/2018	S	JAR, ICE	1	√						√								
15	TR6-07	12/09/2018	S	JAR, ICE	1	√						√								
16	TR6-08	12/09/2018	S	JAR, ICE	1	√						√								
17	TR6-09	12/09/2018	S	JAR, ICE	1	√						√								
18	TR6-10	12/09/2018	S	JAR, ICE	1	√						√								
19	TR6-11	12/09/2018	S	JAR, ICE	1	√						√								
20	TR6-SP1	12/09/2018	S	JAR, ICE	1	√						√								
21	L3-12.9.18	12/09/2018	S	JAR, ICE	1	√						√								
				TOTAL	19															

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: COVA Thinking Pty Ltd	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	✠ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI	ALS QUOTE NO.: EN-222-17 and ME/463/17	COC SEQUENCE NUMBER (Circle)	Freeze / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 4193.005		COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	CONTACT PH: 0417 523 625	OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Fiona Keserue-Ponte	SAMPLER MOBILE: 0417 523 625	RELINQUISHED BY:	RECEIVED BY:
COC emailed to ALS? (YES)	EDD FORMAT (or default):	*Fiona Keserue-Ponte*	
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com		DATE/TIME: 10am 13/9/2018	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com			

RELINQUISHED BY:	RECEIVED BY:
DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED Including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).														Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-4 SG (TRH (C6-C40 + BTEXN)	S-7 (TRH (C6-C4-) / BTEXN / PAH	S-7 SG (TRH (C6-C4-) / BTEXN / PAH	S-24 (TRH (C6-C4-) / BTEXN / PAH plus Phenols		S-3 (15 Metals NEPM suite)	P-22 (NEPM screen for soil Classification)		S-12 (OC & OP pesticides)	EP 202 (Phenoxy acid herbicides)	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)	w-18 (TRC C6-c10) + btexn		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
22	SWP01	12/09/2018	S	JAR, ICE	1	√						√								
23	SWP02	12/09/2018	S	JAR, ICE	1	√						√								
24	SWP03	12/09/2018	S	JAR, ICE	1	√						√								
25	SWP04	12/09/2018	S	JAR, ICE	1	√						√								
26	SWP05	12/09/2018	S	JAR, ICE	1	√						√								
				TOTAL	5															

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Kane Vorwerk

From: Fiona Keserue-Ponte <Fiona.Keserue-Ponte@covathinking.com>
Sent: Friday, 14 September 2018 12:33 PM
To: Kane Vorwerk
Cc: Shirley LeCornu; Melbourne Enviro Services
Subject: RE: 4193.005 COC for 1 esky of soil jars
Attachments: COC 14Sep2018p2.xls; COC 14Sep2018p1.xls

Follow Up Flag: Follow up
Flag Status: Completed

Hi Kane,

2 COC pages attached.

Note 1 jar is to be forwarded to Eurofins please.

Thank you,
Fiona

Fiona Keserue-Ponte
Principal Environmental Scientist - CEnvP & CEnvP SC

COVA
Stronger Together

40 Molle Street, Hobart TAS 7000

O +61 3 6212 4400 E Fiona.Keserue-Ponte@covathinking.com
M +61 417 523 625 W www.covathinking.com

From: Kane Vorwerk [mailto:kane.vorwerk@ALSGlobal.com]
Sent: Friday, 14 September 2018 10:33 AM
To: Fiona Keserue-Ponte <Fiona.Keserue-Ponte@covathinking.com>
Subject: RE: 4193.005 COC for 1 esky of soil jars

Hi Fiona,

Thanks for that.

Regards,

Kane Vorwerk (BSc. (Hons)).

Client Services Officer – Springvale
Environmental

ALS

T +61 3 8549 9600 D +61 3 8549 9652
F +61 3 8549 9626
Kane.Vorwerk@alsglobal.com
2-4 Westall Rd
Springvale Vic 3171

Australia

We are keen for your feedback! Please click here for your 3 minute survey

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EnviroMail™ 121 Dissolved metals | **EnviroMail™ 120** – Microtox **| EnviroMail™ 119** – PFAS in Biota

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www.alsglobal.com

From: Fiona Keserue-Ponte [mailto:Fiona.Keserue-Ponte@covathinking.com]
Sent: Friday, 14 September 2018 9:40 AM
To: Melbourne Enviro Services <MelbourneEnviroSer@alsglobal.com>
Cc: Shirley LeCornu <shirley.lecornu@alsglobal.com>
Subject: 4193.005 COC for 1 esky of soil jars

Hi

You will be receiving 1 esky of soil samples for this job today.

I will send the COC later this morning.

Cheers,
Fiona

Fiona Keserue-Ponte
Principal Environmental Scientist - CEnvP & CEnvP SC

COVA
Stronger Together

40 Molle Street, Hobart TAS 7000

O +61 3 6212 4400 E Fiona.Keserue-Ponte@covathinking.com
M +61 417 523 625 W www.covathinking.com

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee mail@alsglobal.com
☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com
☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: COVA Thinking Pty Ltd	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	✠ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI	ALS QUOTE NO.: EN-222-17 and ME/463/17	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 4193.005		OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	CONTACT PH: 0417 523 625		Other comment:
SAMPLER: Fiona Keserue-Ponte	SAMPLER MOBILE: 0417 523 625	RELINQUISHED BY:	RECEIVED BY:
COC emailed to ALS? (YES)	EDD FORMAT (or default):	*Fiona Keserue-Ponte*	DATE/TIME: 2/11/18 11:40
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com		DATE/TIME: 1pm 1/11/2018	RELINQUISHED BY: / DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com			RECEIVED BY: / DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).													Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-4 SG (TRH (C6-C40 + BTEXN)	S-7 (TRH (C6-C4) / BTEXN / PAH	S-7 SG (TRH (C6-C4) / BTEXN / PAH	S-24 (TRH (C6-C4) / BTEXN / PAH plus Phenols		S-3 (15 Metals NEPM suite)	P-22 (NEPM screen for soil Classification)		S-12 (OC & OP pesticides)	EP 202 (Phenoxy acid herbicides)	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)	W-18 (TRC C6-c10) + btexn		
—	Triplicate 2 (see comment)																				Please send to Eurofins
1	trip blank	1/11/2018		W	BOTTLE	1							√							√	
2	triplicate 1	1/11/2018		S	JAR, ICE	1		√					√								
3	duplicate	1/11/2018		S	JAR, ICE	1	√														
4	rinsate - bucket	1/11/2018		w	bottles	4											√	√			
5	TP17-01	1/11/2018		S	JAR, ICE	1		√					√								
6	TP17-02	1/11/2018		S	JAR, ICE	1	√						√								
7	TP18-01	1/11/201?			R, ICE	1	√						√								
8	TP18-02	1/11/201			, ICE	1	√						√								
9	TP19-01	1/11/201			, ICE	1	√						√								
10	TP19-02	1/11/201			, ICE	1		√					√								
11	L2-V1	1/11/201			, ICE	1	√						√								
12	L2-V2	1/11/201			, ICE	1	√						√								
13	L2-V3	1/11/201			, ICE	1	√						√								
14	L2-V4	1/11/201			, ICE	1	√						√								
15	L2-V5	1/11/201			, ICE	1	√						√								
16	L1-V1	1/11/201			, ICE	1	√														
17	L1-V2	1/11/201			, ICE	1	√														
18	L1-V3	1/11/201			, ICE	1	√														
19	L3-V1	1/11/201			, ICE	1	√														
					TOTAL	23															

FREIGHT

Environmental Division
Melbourne
Work Order Reference
EM1817751

Telephone : +61-3-8549 9600

Forwarded to ALS Laboratory Group

Initials AT Date 5/11

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Pla ...e/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Rebatch

Client / Client code: COVA
Project: Oatlands DSI
Project Manger: FIONA KERSE-PONTE
Date /time sample rec: 2/11 @ 11:40am
Date/time Instructions rec: 14/11 @ 10:24am
Due date: ASAP
Due date surcharge: **ASAP** 3 days

CS Contact: Shirley
Additional Information:
rue

MS: 4685
TC 14-11

URGENT

New Lab ID	Sample information: Client ID	Sampling Date / Time	Previous Work Order Reference	Previous ALS ID	Tray Number(s)	Container	Number of Containers	Analysis: Standard					Analysis: Leach				
													TCLP (pH 5) 13 metals	TCLP (pH 5) PAH			
1	TP17-01	1/11/2018 0:00	EM1817751	5	ms4539-41	50ml	1						X	X			
						TOTAL	0										

Environmental Division
Melbourne
Work Order Reference
EM1818265

Telephone : +61-3-8549 9600

Shirley LeCornu

From: Fiona Keserue-Ponte <Fiona.Keserue-Ponte@covathinking.com>
Sent: Wednesday, 14 November 2018 10:23 AM
To: Shirley LeCornu
Cc: Carly Clark
Subject: FW: RESULTS & EDD & INVOICE for ALS Workorder : EM1817751 | Your Reference: Oatlands DSI
Attachments: EM1817751_0_COA.pdf; EM1817751_0_ENMRG.CSV; Oatlands DSI.ESDAT_EM1817751_0.Chemistry2e.CSV; Oatlands DSI.ESDAT_EM1817751_0.Header.XML; EM1817751_COC.pdf; EM1817751_0_QC.pdf; EM1817751_0_QCI.pdf; Oatlands DSI.ESDAT_EM1817751_0.Sample2e.CSV; L766750_INV.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Shirley,

Do you have enough soil left from sample TP17-01 (combined with Triplicate 1, as they are the same) to do a TCLP pH5 for waste classification?

How long would it take with quick TAT?

Thank you,
Fiona

Fiona Keserue-Ponte
Principal Environmental Scientist - CEnvP & CEnvP SC

COVA
Stronger Together

40 Molle Street, Hobart TAS 7000

O +61 3 6212 4400 E Fiona.Keserue-Ponte@covathinking.com
M +61 417 523 625 W www.covathinking.com

From: angel-no-reply@alsglobal.com [mailto:angel-no-reply@alsglobal.com]
Sent: Monday, 12 November 2018 4:08 PM
To: Fiona Keserue-Ponte <Fiona.Keserue-Ponte@covathinking.com>
Subject: RESULTS & EDD & INVOICE for ALS Workorder : EM1817751 | Your Reference: Oatlands DSI

ALS Environmental

FREIGHT

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: COVA Thinking Pty Ltd	**TURNAROUND REQUIREMENTS :**	✠ Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	☐ Non Standard or urgent TAT **(List due date):**	Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI	**ALS QUOTE NO.:** EN-222-17 and ME/463/17	COC SEQUENCE NUMBER (Circle)	Free Ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 4193.005		COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	**CONTACT PH:** 0417 523 625	OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Fiona Keserue-Ponte	**SAMPLER MOBILE:** 0417 523 625		
COC emailed to ALS? (YES)	**EDD FORMAT (or default):**		
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com			
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com			

RELINQUISHED BY:	**RECEIVED BY:**	**RELINQUISHED BY:**	**RECEIVED BY:**
Fiona Keserue-Ponte	Aina (ALS)		
DATE/TIME: 10am 19/12/2018	DATE/TIME: 20/12/18 (10:25)	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE | **SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)** | **CONTAINER INFORMATION** | **ANALYSIS REQUIRED including SUITES** (NB. Suite Codes must be listed to attract suite price) Where **Metals** are required, specify **Total** (unfiltered bottle required) or **Dissolved** (field filtered bottle required). | **Additional Information**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-4 SG (TRH (C6-C40 + BTEXN)	S-7 (TRH (C6-C4-) / BTEXN / PAH	S-7 SG (TRH (C6-C4-) / BTEXN / PAH	S-24 (TRH (C6-C4-) / BTEXN / PAH plus Phenols	S-14A (PAH ONLY)	S-3 (15 Metals NEPM suite)	P-22 (NEPM screen for soil Classification)		S-12 (OC & OP pesticides)	EP 202 (Phenoxy acid herbicides)	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)	w-18 (TRC C6-c10) + btexn	
1	tripl 1	18/12/2018	S	JAR, ICE	1						√	√								
2	dup	18/12/2018	S	JAR, ICE	1						√	√								
3	MR01	18/12/2018	S	JAR, ICE	1						√	√								
4	MR02	18/12/2018	S	JAR, ICE	1						√	√								
5	MR03	18/12/2018	S	JAR, ICE	1						√	√								
6	MR04	18/12/2018	S	JAR, ICE	1						√	√								
7	MR05	18/12/2018	S	JAR, ICE	1						√	√								
8	MR06	18/12/2018	S	JAR, ICE	1						√	√								
9	MR07	18/12/2018	S	JAR, ICE	1						√	√								
10	MR08	18/12/2018	S	JAR, ICE	1						√	√								
11	MR09	18/12/2018	S	JAR, ICE	1						√	√								
12	MR10	18/12/2018	S	JAR, ICE	1						√	√								
13	MR11	18/12/2018	S	JAR, ICE	1						√	√								
14	MR12	18/12/2018	S	JAR, ICE	1						√	√								
15	MR13	18/12/2018	S	JAR, ICE	1						√	√								
16	MR14	18/12/2018	S	JAR, ICE	1						√	√								
17	MS01	18/12/2018	S	JAR, ICE	1						√	√								
18	MS02	18/12/2018	S	JAR, ICE	1						√	√								
19	MS03	18/12/2018	S	JAR, ICE	1						√	√								
20	MS04	18/12/2018	S	JAR, ICE	1						√	√								
				TOTAL	20															

Environmental Division Melbourne
Work Order Reference
EM1820652

Telephone : + 61-3-8549 9600

IF metals or PAH > IB105 Level 2, will need to consider TCLP.

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Shirley LeCornu

From: Fiona Keserue-Ponte <Fiona.Keserue-Ponte@covathinking.com>
Sent: Wednesday, 19 December 2018 1:23 PM
To: Shirley LeCornu
Cc: Carly Clark
Subject: 4193.005 COC
Attachments: COC 19 Dec 2018.xls

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Shirley

COC attached for samples coming to you via TasFast. Should arrive tomorrow.

Understand results won't be available until Jan – not sure if you need to do extractions before x-mas though.

Thank you!

And a big thank you for your help this year. Best wishes for a happy and restful holiday when you get to it ☺

Fiona

Fiona Keserue-Ponte
Principal Environmental Scientist - CEnvP & CEnvP SC

COVA

40 Molle Street, Hobart TAS 7000

O +61 3 6212 4400 E Fiona.Keserue-Ponte@covathinking.com
M +61 417 523 625 W www.covathinking.com

Rebatch

Client / Client code: COVA
Project: Oatlands DSI
Project Manger: FIONA KERSE-PONTE
Date /time sample rec: 20/12 @ 10:25am
Date/time Instructions rec: 8/1 @ 12pm (phone call)
Due date: std
Due date surcharge:

CS Contact: Shirley
Additional Information:

Environmental Division
Melbourne
Work Order Reference
EM1900118

Telephone : + 61-3-8549 9600

MS 16.

New Lab ID	Sample information: Client ID	Sampling Date / Time	Previous Work Order Reference	Previous ALS ID	Tray Number(s)	Container	Number of Containers	Analysis: Standard					Leach: TCLP - Lead				
17	DUP	18/12/2018 0:00	EM1820652	2	ms5226-27								X				
18	MS02	18/12/2018 0:00	EM1820652	18	ms5226-27								X				
19	MS03	18/12/2018 0:00	EM1820652	19	ms5226-27								X				
						TOTAL	0										

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: COVA Thinking Pty Ltd	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	☒ Standard TAT (**List due date**):	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: 5, 40 Molle Street, Hobart, TAS, 7000		☐ Non Standard or urgent TAT (**List due date**):	Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI	**ALS QUOTE NO.:** EN-222-17 and ME/463/17	**COC SEQUENCE NUMBER (Circle)**	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 4193.005		COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	**CONTACT PH:** 0417 523 625	OF: 1 2 3 4 5 6 7	Other comments:
SAMPLER: Fiona Keserue-Ponte	**SAMPLER MOBILE:** 0417 523 625	**RELINQUISHED BY:**	**RECEIVED BY:**
COC emailed to ALS? (YES)	**EDD FORMAT (or default):**	*Fiona Keserue-Ponte*	
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com		DATE/TIME:	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com		10am 19/12/2018	

RELINQUISHED BY:	**RECEIVED BY:**
DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where **Metals** are required, specify **Total** (unfiltered bottle required) or **Dissolved** (field filtered bottle required).														Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS					TCLP Leachate pH5	Leachable Metals (Pb)									
1	dup	18/12/2018	S	JAR, ICE	1					✓	✓									Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
2	MS01	18/12/2018	S	JAR, ICE	1					✓	✓									
3	MS02	18/12/2018	S	JAR, ICE	1					✓	✓									TCLP pH 5 on an even composite of all 5 samples
4	MS03	18/12/2018	S	JAR, ICE	1					✓	✓									
5	MS04	18/12/2018	S	JAR, ICE	1					✓	✓									
6	Composite																			
					TOTAL	5														

Environmental Division Melbourne

Work Order Reference

EM1901520

Telephone : + 61-3-8549 9600

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

19/12/18

Shirley LeCornu

From: Carly Clark <Carly.Clark@covathinking.com>
Sent: Wednesday, 6 February 2019 11:33 AM
To: Shirley LeCornu
Cc: Fiona Keserue-Ponte
Subject: 4193.005 - Request for Additional Analysis
Attachments: COC 19 Dec 2018-additional TCLP.pdf

Hi Shirley,

Based on the results from EM1900118, could you please carry out the following tests (as noted in the attached COC)?

Carry out the following:

- TCLP leach (pH5), then
- test leachate for leachable Pb
-

on an EVEN COMPOSITE of samples:

- 1 DUP 0118
- 17 MS01 1820652-17
- 2 MS02 0118
- 3 MS03 0118
- 20 MS04 1820652-020

MS 0016

MS 5226-27

Thank you!
Carly

Carly Clark
Discipline Leader, Environment - CEnvP & CEnvP SC

COVA
Stronger Together

Level 3, 3 Acacia Place, Notting Hill VIC 3168

O +61 3 8545 0418 E Carly.Clark@covathinking.com
M +61 447 328 885 W covathinking.com

MS 427

FREIGHT

ALS Environmental

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com
☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: COVA Thinking Pty Ltd	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	✠ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle): Custody Seal Intact? Yes No N/A
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT (List due date):	Free ice / frozen ice bricks present upon receipt? Yes No N/A
PROJECT: Oatlands DSI	ALS QUOTE NO.: EN-222-18	COC SEQUENCE NUMBER (Circle)	Random Sample Temperature on Receipt:
ORDER NUMBER: 4193.005		COC: 1 2 3 4 5 6 7	Other comment:
PROJECT MANAGER: Fiona Keserue-Ponte	CONTACT PH: 0417 523 625	OF: 1 2 3 4 5 6 7	

SAMPLER: Fiona Keserue-Ponte	SAMPLER MOBILE: 0417 523 625	RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:
COC emailed to ALS? (YES)	EDD FORMAT (or default):	*Fiona Keserue-Ponte*		
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com		DATE/TIME:	DATE/TIME:	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com		2pm 14/5/2019		

RECEIVED BY:	DATE/TIME:
[signature]	10-57

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).														Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-4 SG (TRH (C6-C40 + BTEXN)	S-7 (TRH (C6-C4-) / BTEXN / PAH	S-7 SG (TRH (C6-C40) / BTEXN / PAH	S-24 (TRH (C6-C4-) / BTEXN / PAH plus Phenols		S-3 (15 Metals NEPM suite)	P-22 (NEPM screen for soil Classification)	w-24 (TRH (C6-C4-) / BTEXN / PAH plus Phenols	S-12 (OC & OP pesticides)	EP 202 (Phenoxy acid herbicides)	W-4 (TRH (C8-C40 + BTEXN)	W-3 (15 Metals NEPM suite)	w-18 (TRC C6-c10) + btexn		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	OPbVal01	14/05/2019	S	JAR, ICE	1							√								
2	OPbVal02	14/05/2019	S	JAR, ICE	1							√								
3	OPbVal03	14/05/2019	S	JAR, ICE	1							√								
4	OPbVal04	14/05/2019	S	JAR, ICE	1							√								
5	OPbVal05	14/05/2019	S	JAR, ICE	1							√								
6	Dup	14/05/2019	S	JAR, ICE	1							√								
7	Rinsate	14/05/2019	w	bottles ice	4													√		
				TOTAL	10															

Environmental Division Melbourne
Work Order Reference
EM1907330

Telephone : +61-3-8549 9600

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Shirley LeCornu

From: Fiona Keserue-Ponte <Fiona.Keserue-Ponte@covathinking.com>
Sent: Tuesday, 14 May 2019 4:33 PM
To: Shirley LeCornu
Subject: 4193.005 COC - Soil footprint validation
Attachments: COC 14May2019.xls

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Shirley,

COC attached for soil samples sent today; the esky should be with you tomorrow.

Thank you,
Fiona

Fiona Keserue-Ponte
Principal Environmental Scientist - CEnvP & CEnvP SC

COVA
Stronger Together

40 Molle Street, Hobart TAS 7000

O +61 3 6212 4414
M +61 417 523 625
E Fiona.Keserue-Ponte@covathinking.com
W covathinking.com

eurofins | mgt

☐ **Sydney**
Unit F3 - 6 Building F, 16 Mars Road, Lane Cove
Phone: +612 9900 8400
Email: EnviroSampleNSW@eurofins.com.au

☐ **Brisbane**
Unit 1-21 Smallwood Place, Murrarie
Phone: +617 3902 4600
Email: EnviroSampleQLD@eurofins.com.au

☑ **Melbourne**
2 Kingston Town Close, Oakleigh, VIC 3166
Phone: +613 8564 5000 Fax: +613 8564 5090
Email: EnviroSampleVic@eurofins.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name :	SEMF Pty. Ltd.	**Contact Name:**	Fiona Keserue-Ponte	**Purchase Order :**	4193.005
Office Address :	5, 40 Molle Street, Hobart, TAS, 7000	**Project Manager :**	Fiona Keserue-Ponte	**PROJECT Number :**	4193.005
		Email for results :	fiona.keserue-ponte@semf.com.au	**PROJECT Name :**	Oatlands DSI

COC Number :

Eurofins | mgt quote ID :

Data output format:

Special Directions & Comments :

Eurofins | mgt DI water batch number:

	Sample ID	Date	Matrix	BTEXN & TRH	PAH	15 NEPM Metals	herbicides	pesticides	phenols
1	Triplicate 2	31/01/2018	S	√	√	√			
2	triplicate 4	1/02/2018	S	√	√	√			
3	triplicate 6	1/02/2018	S	√	√	√	√	√	√
4	triplicate 8	2/02/2018	S	√	√	√			
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

1LP	250P	125P	1LA	40mL vial	125mL A	Jar	
						√	
						√	
						√	
						√	

Sample comments:
landfarm triplicate
Pit triplicate

Laboratory Staff

Relinquished By: Fiona keserue-ponte
Date & Time:: 4:30pm 2/2/2018
Signature: fkp

Received By: SJ
Date & Time: 5/2 3:37p
Signature:

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☐
5 DAY ☑ 10 DAY ☐ Other:

Method Of Shipment

☑ Courier
☐ Hand Delivered
☐ Postal
Courier Consignment # : Tasfast 751284

Temperature on arrival:

Report number: 583301

Enviro Sample Vic

From: Onur Mehmet
Sent: Monday, 5 February 2018 11:27 AM
To: Enviro Sample Vic
Subject: FW: 4193.005 COC
Attachments: COC - Oatlands QA.xls

Importance: High

Onur Mehmet
Phone : +61 3 8564 5026
Email : OnurMehmet@eurofins.com

From: Fiona Keserue-Ponte [mailto:Fiona.Keserue-Ponte@semf.com.au]
Sent: Friday, 2 February 2018 11:27 PM
To: Onur Mehmet
Subject: 4193.005 COC

Hi Onur,

COC attached for QA samples sent to Eurofins today via Tasfast.

Thank you.
Fiona

Regards,

Fiona Keserue-Ponte
Principal Environmental Scientist

40 Molle Street, Hobart TAS 7000

T	03 6212 4400	**D**	03 6212 4414
F	03 6212 4475	**E**	Fiona.Keserue-Ponte@semf.com.au
M	0417 523 625	**W**	www.semf.com.au

Please consider the environment before printing this email

eurofins | mgt

☐ **Sydney**
Unit F3 - 6 Building F, 16 Mars Road, Lane Cove
Phone: +612 9900 8400
Email: EnviroSampleNSW@eurofins.com.au

☐ **Brisbane**
Unit 1-21 Smallwood Place, Murrarie
Phone: +617 3902 4600
Email: EnviroSampleQLD@eurofins.com.au

☑ **Melbourne**
2 Kingston Town Close, Oakleigh, VIC 3166
Phone: +613 8564 5000 Fax: +613 8564 5090
Email: EnviroSampleVic@eurofins.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name :	SEMF Pty. Ltd.	**Contact Name:**	Fiona Keserue-Ponte	**Purchase Order :**	4193.005
Office Address :	5, 40 Molle Street, Hobart, TAS, 7000	**Project Manager :**	Fiona Keserue-Ponte	**PROJECT Number :**	4193.005
		Email for results :	fiona.keserue-ponte@semf.com.au	**PROJECT Name :**	Oatlands DSI

COC Number :

Eurofins | mgt quote ID :

Data output format:

Special Directions & Comments :

Eurofins | mgt DI water batch number:

	Sample ID	Date	Matrix	BTEXN & TRH	PAH	Pb	phenols
1	Triplicate 2	20/02/2018	S	√	√	√	√
2	Triplicate 4	20/02/2018	S	√	√	√	√
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

Analytes

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

1LP	250P	125P	1LA	40mL vial	125mL A	Jar		Sample comments:
						√		
						√		

Laboratory Staff

Relinquished By:	Fiona keserue-ponte
Date & Time::	4:30pm 2/2/2018
Signature:	fkp

Received By:	
Date & Time:	
Signature:	

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☐

5 DAY ☑ 10 DAY ☐ Other:

Method Of Shipment

☑ Courier
☐ Hand Delivered
☐ Postal

Courier Consignment # : Tasfast 751284

G. Gdn 22/2/18

Temperature on arrival:

Report number: 586154

Enviro Sample Vic

From: Fiona Keserue-Ponte <Fiona.Keserue-Ponte@semf.com.au>
Sent: Thursday, 22 February 2018 10:58 AM
To: Onur Mehmet; Enviro Sample Vic
Subject: RE: COC - 4193.005
Attachments: COC - Oatlands QA2.xls

Hi Onur,

COC attached.

Sorry for the delay.

Cheers,
Fiona

From: Onur Mehmet [mailto:OnurMehmet@eurofins.com]
Sent: Thursday, 22 February 2018 10:31 AM
To: Fiona Keserue-Ponte <Fiona.Keserue-Ponte@semf.com.au>; EnviroSampleVic@eurofins.com
Subject: RE: COC

Thank you.

Onur Mehmet
Phone : +61 3 8564 5026
Email : OnurMehmet@eurofins.com

From: Fiona Keserue-Ponte [mailto:Fiona.Keserue-Ponte@semf.com.au]
Sent: Thursday, 22 February 2018 10:30 AM
To: Onur Mehmet
Subject: COC

EXTERNAL EMAIL*

Hi Onur,

Will send the coc shortly for the two triplicates you will receive today.

Thanks
Fiona

Regards,

Fiona Keserue-Ponte
Principal Environmental Scientist

40 Molle Street, Hobart TAS 7000

T	03 6212 4400	**D**	03 6212 4414
F	03 6212 4475	**E**	Fiona.Keserue-Ponte@semf.com.au
M	0417 523 625	**W**	www.semf.com.au

Please consider the environment before printing this email.

eurofins | mgt

☐ **Sydney**
Unit F3 - 6 Building F, 16 Mars Road, Lane Cove
Phone: +612 9900 8400
Email: EnviroSampleNSW@eurofins.com.au

☐ **Brisbane**
Unit 1-21 Smallwood Place, Murrarie
Phone: +617 3902 4600
Email: EnviroSampleQLD@eurofins.com.au

☑ **Melbourne**
2 Kingston Town Close, Oakleigh, VIC 3166
Phone: +613 8564 5000 Fax: +613 8564 5090
Email: EnviroSampleVic@eurofins.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name :	COVA Thinking Pty. Ltd.	**Contact Name:**	Fiona Keserue-Ponte	**Purchase Order :**	4193.005	**COC Number :**	
Office Address :	5, 40 Molle Street, Hobart, TAS, 7000	**Project Manager :**	Fiona Keserue-Ponte	**PROJECT Number :**	4193.005	**Eurofins | mgt quote ID :**	
		Email for results :	fiona.keserue-ponte@covathinking.com	**PROJECT Name :**	Oatlands DSI and remediation	**Data output format:**	

Special Directions & Comments :

Transfer from ALS

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	BTEXN & TRH	PAH
1	VTripl2	28/05/2018	S	√	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

1LP	250P	125P	1LA	40mL vial	125mL A	Jar	
						√	

Sample comments:

Laboratory Staff

Relinquished By: Fiona Keserue-Ponte Via ALS
Date & Time:: ALS tracking
Signature: FKP

Received By: Jolpa Patel
Date & Time: 1/6/18 3:15Pm
Signature:

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☐
5 DAY ☑ 10 DAY ☐ Other:

Method Of Shipment

☑ Courier
☐ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival:

Report number: 601338

eurofins | mgt

☐ **Sydney**
Unit F3 - 6 Building F, 16 Mars Road, Lane Cove
Phone: +612 9900 8400
Email: EnviroSampleNSW@eurofins.com.au

☐ **Brisbane**
Unit 1-21 Smallwood Place, Murrarie
Phone: +617 3902 4600
Email: EnviroSampleQLD@eurofins.com.au

☑ **Melbourne**
2 Kingston Town Close, Oakleigh, VIC 3166
Phone: +613 8564 5000 Fax: +613 8564 5090
Email: EnviroSampleVic@eurofins.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name :	COVA Thinking Pty. Ltd.	**Contact Name:**	Fiona Keserue-Ponte	**Purchase Order :**	4193.005
Office Address :	5, 40 Molle Street, Hobart, TAS, 7000	**Project Manager :**	Fiona Keserue-Ponte	**PROJECT Number :**	4193.005
		Email for results :	fiona.keserue-ponte@covathinking.com	**PROJECT Name :**	Oatlands DSI and remediation

COC Number :

Eurofins | mgt quote ID :

Data output format:

Special Directions & Comments :

Transfer from ALS

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	Tas Information Bulletin 105 suite
1	Tripl 2	1/06/2018	S	√
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

1LP	250P	125P	1LA	40mL vial	125mL A	Jar	
						√	

Sample comments:

Laboratory Staff

Relinquished By:	Fiona Keserue-Ponte Via ALS
Date & Time::	ALS tracking
Signature:	FKP
Received By:	CANA TO
Date & Time:	05/06/18 4:31pm
Signature:	CA TO

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☐
5 DAY ☑ 10 DAY ☐ Other:

Method Of Shipment

☑ Courier
☐ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival:

Report number:

#12 FREIGHT

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4958 9433 E: samples.newcastle@alsglobal.com
☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2053 E: nowra@alsglobal.com
☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT:	COVA Thinking Pty Ltd	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	✠ Standard TAT (List due date):
OFFICE:	5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT (List due date):
PROJECT:	Oatlands DSI - Remediation	ALS QUOTE NO.:	EN-222-17 and ME/463/17
ORDER NUMBER:	4193.005		
PROJECT MANAGER:	Fiona Keserue-Ponte	CONTACT PH:	0417 523 625
SAMPLER:	Fiona Keserue-Ponte	SAMPLER MOBILE:	0417 523 625
COC emailed to ALS? (YES)		EDD FORMAT (or default):	
Email Reports to (will default to PM if no other addresses are listed):	fiona.keserue-ponte@covathinking.com		
Email Invoice to (will default to PM if no other addresses are listed):	fiona.keserue-ponte@covathinking.com		

COC SEQUENCE NUMBER (Circle)

COC:	1	2	3	4	5	6	7
OF:	1	2	3	4	5	6	7

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free Ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comment:			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Fiona Keserue-Ponte	Tom (ALS)	Tom (ALS)	CANA TO
DATE/TIME: 4/6/2018 9am	DATE/TIME: 11:10, 5-6-18	DATE/TIME: 13:40, 5/6/18	DATE/TIME: 05/06/18 4:31pm

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-3 (15 Metals NEPM suite)	S-18 (TRC C6-c10) + btexn	EA200 - 50g prsesence / absence of free fibres	EA200B - asbestos in bulk solids (potential bonded ACM)	EA156 - Friability test on bulk solids WHERE DETECTED	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)	P20/1 (IB105)		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
7	Tripl 2	1/06/2018	S	JAR, ICE	1			√								PLEASE TRANSFER TO EUROFINS
1	trip blank	1`/6/2018	s	jar	1	√										
2	Tripl 1	1`/6/2018	S	JAR, ICE	1	√										
3	C1	1`/6/2018	S	JAR, ICE	1	√										
4	C2	1`/6/2018	S	JAR, ICE	1	√										
5	C3	1`/6/2018	S	JAR, ICE	1	√										
6	C4	1`/6/2018	S	JAR, ICE	1	√										
7	E1	1`/6/2018	S	JAR, ICE	1									√		
8	D1	1`/6/2018	S	JAR, ICE	1									√		
9	D2	1`/6/2018	S	JAR, ICE	1									√		
10	D3	1`/6/2018	S	JAR, ICE	1									√		
11	D4	1`/6/2018	S	JAR, ICE	1									√		
12	D5	1`/6/2018	S	JAR, ICE	1									√		
	TOTAL				13											

Environmental Division Melbourne
Work Order Reference
EM1809075

Telephone : + 61-3-8549 9600

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

eurofins | mgt

☐ **Sydney**
Unit F3 - 6 Building F, 16 Mars Road, Lane Cove
Phone: +612 9900 8400
Email: EnviroSampleNSW@eurofins.com.au

☐ **Brisbane**
Unit 1-21 Smallwood Place, Murrarie
Phone: +617 3902 4600
Email: EnviroSampleQLD@eurofins.com.au

☑ **Melbourne**
2 Kingston Town Close, Oakleigh, VIC 3166
Phone: +613 8564 5000 Fax: +613 8564 5090
Email: EnviroSampleVic@eurofins.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name :	COVA Thinking Pty. Ltd.	**Contact Name:**	Fiona Keserue-Ponte	**Purchase Order :**	4193.005
Office Address :	5, 40 Molle Street, Hobart, TAS, 7000	**Project Manager :**	Fiona Keserue-Ponte	**PROJECT Number :**	4193.005
		Email for results :	fiona.keserue-ponte@covathinking.com	**PROJECT Name :**	Oatlands DSI and remediation

COC Number :

Eurofins | mgt quote ID :

Data output format:

Special Directions & Comments :

Transfer from ALS

Eurofins | mgt DI water batch number:

	Sample ID	Date	Matrix	BTEXN & TRH	PAH
1	Tript2 30/5	30/05/2018	S	√	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Analytes

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

1LP	250P	125P	1LA	40mL vial	125mL A	Jar	
						√	

Sample comments:

Relinquished By: Fiona Keserue-Ponte Via ALS

Date & Time:: ALS tracking

Signature: FKP

Laboratory Staff

Received By: D JONES

Date & Time: 5/6/18 - 4:32pm

Signature:

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☐

5 DAY ☑ 10 DAY ☐ Other:

Method Of Shipment

☑ Courier
☐ Hand Delivered
☐ Postal

Courier Consignment # :

Temperature on arrival: 0.3

Report number: 601851

Report: 601851

#1

FREIGHT

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com

NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville environmental@alsglobal.com

WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: COVA Thinking Pty Ltd	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	✻ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI - Remediation	ALS QUOTE NO.: EN-222-17 and ME/463/17	COC SEQUENCE NUMBER (Circle)	Free Ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 4193.005		COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	CONTACT PH: 0417 523 625	OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Fiona Keserue-Ponte	SAMPLER MOBILE: 0417 523 625		
COC emailed to ALS? (YES)	EDD FORMAT (or default):		
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com			
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Fiona Keserue-Ponte			
DATE/TIME: 31/5/2018 6pm	DATE/TIME:	DATE/TIME:	DATE/TIME: 4/6, 10:50

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).														Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-3 (15 Metals NEPM suite)	w-18 (TRC C6-C10) + btexn	EA260 - 50g presence / absence of free fibres	EA200B - asbestos in bulk solids (potential bonded ACM)	EA156 - Friability test on bulk solids WHERE DETECTED	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)							Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	trip blank	30/05/2018	W	bottle	1			√												
2	TP10V-01	30/05/2018	S	JAR, ICE	1	√														
3	TP10V-02	30/05/2018	S	JAR, ICE	1	√														
4	TP10V-03	30/05/2018	S	JAR, ICE	1	√														
5	TP10V-04	30/05/2018	S	JAR, ICE	1	√														
6	TP10V-05	30/05/2018	S	JAR, ICE	1	√														
7	TP10V-06	30/05/2018	S	JAR, ICE	1	√														
8	tripl 1 30.5	30/05/2018	S	JAR, ICE	1	√														
—	Tripl 2 30.5	305/2018	S	JAR, ICE	1															PLEASE TRANSFER TO EUROFINS
9	TP10V-07	30/05/2018	S	JAR, ICE	1	√														
10	TP10V-08	30/05/2018	S	JAR, ICE	1	√														
11	TP10V-09	30/05/2018	S	JAR, ICE	1	√														
12	TP10V-10	30/05/2018	S	JAR, ICE	1	√														
13	TP10V-11	30/05/2018	S	JAR, ICE	1	√														
14	TP10V-12	30/05/2018	S	JAR, ICE	1	√														
15	TP10V-13	30/05/2018	S	JAR, ICE	1	√														
16	TP10V-14	30/05/2018	S	JAR, ICE	1	√														
17	TP10V-15	30/05/2018	S	JAR, ICE	1	√														
18	TP10V-16	30/05/2018	S	JAR, ICE	1	√														
19	TP10V-17	30/05/2018	S	JAR, ICE	1	√														
20	TP10V-18	30/05/2018	S	JAR, ICE	1	√														
				TOTAL	20															

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Received: DJONES
5/6/18 ~4:22pm
Report: 601851

Released: Tom (ALS)
3:40, 5-6-18

FREIGHT #14

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0590 E: adelaide@alsglobal.com
BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
MELBOURNE 2-4 Westall Road Springvale Vic 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee mail@alsglobal.com
NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4958 9433 E: samples.newcastle@alsglobal.com
NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com
WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: perthemla@alsglobal.com

CLIENT: COVA Thinking Pty Ltd	TURNAROUND REQUIREMENTS :	✠ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI - Remediation	ALS QUOTE NO.: EN-222-17 and ME/463/17	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 4193.005		OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	CONTACT PH: 0417 523 625		Other comment:
SAMPLER: Fiona Keserue-Ponte	SAMPLER MOBILE: 0417 523 625	RELINQUISHED BY: Fiona Keserue-Ponte	RECEIVED BY:
COC emailed to ALS? (YES)	EDD FORMAT (or default):	DATE/TIME: 22/6/2018 9am	DATE/TIME:
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com		RELINQUISHED BY: [signature]	RECEIVED BY: [signature]
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com		DATE/TIME: 26/6/18 1:05 pm	DATE/TIME: 26/6 1120

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).													Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-3 (15 Metals NEPM suite)	S-18 (TRC C6-c10) + btexn	EA200 - 50g presence / absence of freo fibres	EA200B - asbestos in bulk solids (potential bonded ACM)	EA156 - Friability test on bulk solids WHERE DETECTED	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)	P20/1 (IB105)	w-18 (TRC C6-c10) + btexn					Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	trip blank	21/06/2018	w	bottle	1										√					Forwarded to Secondary Lab Initials [illegible] Date 26/6/18
2	Triplicate 1	21/06/2018	S	JAR, ICE	1	√														
3	Trench 1a	21/06/2018	S	JAR, ICE	1	√														
4	Trench 1b	21/06/2018	S	JAR, ICE	1	√														
5	Trench 2a	21/06/2018	S	JAR, ICE	1	√														
6	Trench 3a	21/06/2018	S	JAR, ICE	1	√														
7	Trench 3b	21/06/2018	S	JAR, ICE	1	√														
8	Trench 3c	21/06/2018	S	JAR, ICE	1	√														
9	Trench 4a	21/06/2018	S	JAR, ICE	1	√														
10	Trench 4b	21/06/2018	S	JAR, ICE	1	√														
→	Triplicate 2	21/06/2018	S	JAR, ICE	1															PLEASE TRANSFER TO EUROFINS
				TOTAL	11															

Environmental Division Melbourne
Work Order Reference
EM1810131

Telephone : +61-3-8549 9600

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Will O'Haire
604769 26/6/18

eurofins | mgt

☐ **Sydney**
Unit F3 - 6 Building F, 16 Mars Road, Lane Cove
Phone: +612 9900 8400
Email: EnviroSampleNSW@eurofins.com.au

☐ **Brisbane**
Unit 1-21 Smallwood Place, Murrarie
Phone: +617 3902 4600
Email: EnviroSampleQLD@eurofins.com.au

☑ **Melbourne**
2 Kingston Town Close, Oakleigh, VIC 3166
Phone: +613 8564 5000 Fax: +613 8564 5090
Email: EnviroSampleVic@eurofins.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name :	COVA Thinking Pty. Ltd.	**Contact Name:**	Fiona Keserue-Ponte	**Purchase Order :**	4193.005
Office Address :	5, 40 Molle Street, Hobart, TAS, 7000	**Project Manager :**	Fiona Keserue-Ponte	**PROJECT Number :**	4193.005
		Email for results :	fiona.keserue-ponte@covathinking.com	**PROJECT Name :**	Oatlands DSI and remediation

COC Number :

Eurofins | mgt quote ID :

Data output format:

Special Directions & Comments :

Transfer from ALS

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	BTEXN & TRH	PAH
1	Triplicate 2	21/06/2018	S	√	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

1LP	250P	125P	1LA	40mL vial	125mL A	Jar		Sample comments:
						√		

Relinquished By: Fiona Keserue-Ponte Via ALS

Date & Time:: ALS tracking

Signature: FKP

Laboratory Staff

Received By: Will O'Haire

Date & Time: 26/6/K

Signature: 604769

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☐

5 DAY ☑ 10 DAY ☐ Other:

Method Of Shipment

☑ Courier
☐ Hand Delivered
☐ Postal

Courier Consignment # :

Temperature on arrival:

Report number:

eurofins | mgt

☐ **Sydney**
Unit F3 - 6 Building F, 16 Mars Road, Lane Cove
Phone: +612 9900 8400
Email: EnviroSampleNSW@eurofins.com.au

☐ **Brisbane**
Unit 1-21 Smallwood Place, Murrarie
Phone: +617 3902 4600
Email: EnviroSampleQLD@eurofins.com.au

☑ **Melbourne**
2 Kingston Town Close, Oakleigh, VIC 3166
Phone: +613 8564 5000 Fax: +613 8564 5090
Email: EnviroSampleVic@eurofins.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name :	COVA Thinking Pty. Ltd.	**Contact Name:**	Fiona Keserue-Ponte	**Purchase Order :**	4193.005
Office Address :	5, 40 Molle Street, Hobart, TAS, 7000	**Project Manager :**	Fiona Keserue-Ponte	**PROJECT Number :**	4193.005
		Email for results :	fiona.keserue-ponte@covathinking.com	**PROJECT Name :**	Oatlands DSI and remediation

COC Number :

Eurofins | mgt quote ID :

Data output format:

Special Directions & Comments :
Transfer from ALS

Eurofins | mgt DI water batch number:

	Sample ID	Date	Matrix	BTEXN & TRH	PAH	15 metals (NEPM)
1	Triplicate 2	12/09/2018	S	√		√
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

1LP	250P	125P	1LA	40mL vial	125mL A	Jar	
						√	

Sample comments:

Laboratory Staff

Relinquished By: Fiona Keserue-Ponte Via ALS
Date & Time:: ALS tracking
Signature: FKP

Received By:
Date & Time: 17/9 1:57
Signature:

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☐
5 DAY ☑ 10 DAY ☐ Other:

Method Of Shipment

☑ Courier
☐ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival:

Report number: 618082

15

Enviro Sample Vic

From: Michael Cassidy
Sent: Monday, 17 September 2018 9:09 AM
To: Enviro Sample Vic
Subject: FW: 4193.005 COC for 1 soil: Triplicate 2
Attachments: image001.png; image002.png; image003.png; image004.png; image005.png; image006.png; Eurofins COC - Oatlands 12 Sep.xls

Thanks Tony,

Kind Regards,

Michael Cassidy

Phone: 8564 5940
Mobile: 0498 700 069
Email : MichaelCassidy@eurofins.com

From: Fiona Keserue-Ponte [mailto:Fiona.Keserue-Ponte@covathinking.com]
Sent: Friday, 14 September 2018 12:39 PM
To: Onur Mehmet
Cc: Michael Cassidy
Subject: 4193.005 COC for 1 soil: Triplicate 2

EXTERNAL EMAIL*

Hi Onur,

Please find attached COC for 1 soil jar triplicate which is being transferred to you by ALS.

Please let the lab know it should get to them either this afternoon or Monday and provide this COC. They always contact me saying unknown analyses when they get these from ALS even if I have sent you the COC.

Thank you,
Fiona

Fiona Keserue-Ponte
Principal Environmental Scientist - CEnvP & CEnvP SC

40 Molle Street, Hobart TAS 7000

O+61 E Fiona.Keserue-Ponte@covathinking.com
M3 Whttp://webdefence.global.blackspider.com/urlwrap/?q=AXicE2RmWCLMwHBCkYGhKKfSwCJJr7ioTCi
6212 vpCg_Ry85P5eh3MLVKCXStMLAwMjIwpzBNzM5IzE1xzmxuDgzpdIhtbQoPy0zrxisNKOkpMBKX7-
4400 8vBzILUssycjMy87MSwfLMTDwcDEwAAAtviRv&Z
+61
417
523
625

COVA
Stronger Together

COC Received at 12-33 4Cg

(15)

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0390 E: adelaide@alsglobal.com
☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com
☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: COVA Thinking Pty Ltd	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	✠ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI	ALS QUOTE NO.: EN-222-17 and ME/463/17	COC SEQUENCE NUMBER (Circle)	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 4193.005		COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	CONTACT PH: 0417 523 625	OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Fiona Keserue-Ponte	SAMPLER MOBILE: 0417 523 625	RELINQUISHED BY:	RECEIVED BY:
COC emailed to ALS? (YES)	EDD FORMAT (or default):	Fiona Keserue-Ponte	
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com		DATE/TIME: 10am 13/9/2018	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com			

RELINQUISHED BY:	RECEIVED BY:
Ruth	
DATE/TIME: 17/9/18 @ 11.20	DATE/TIME: Wed 9:55

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: TR6-SP1 is contaminated and will higher TRH/BTEXN - others should have little to no detections

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).														Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-4 SG (TRH (C6-C40 + BTEXN)	S-7 (TRH (C6-C4-) / BTEXN / PAH	S-7 SG (TRH (C6-C4-) / BTEXN / PAH	S-24 (TRH (C6-C4-) / BTEXN / PAH plus Phenols		S-3 (15 Metals NEPM suite)	P-22 (NEPM screen for soil Classification)		S-12 (OC & OP pesticides)	EP 202 (Phenoxy acid herbicides)	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)	w-18 (TRG C6-c10) + btexn		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	Triplicate 2 (see comment)																			Please send to Eurofins
1	trip blank	12/09/2018	W	BOTTLE	1														√	
2	triplicate 1	12/09/2018	S	JAR, ICE	1	√						√								
3	duplicate 1	12/09/2018	S	JAR, ICE	1	√						√								
4	TR5-01	12/09/2018	S	JAR, ICE	1	√						√								
5	TR5-02	12/09/2018	S	JAR, ICE	1	√						√								
6	TR5-03	12/09/2018	S	JAR, ICE	1		√					√								
7	TR5-04	12/09/2018	S	JAR, ICE	1	√						√								
8	TR5-05	12/09/2018	S	JAR, ICE	1	√						√								
9	TR6-01	12/09/2018	S	JAR, ICE	1		√					√								
10	TR6-02	12/09/2018	S	JAR, ICE	1	√						√								
11	TR6-03	12/09/2018	S	JAR, ICE	1		√					√								
12	TR6-04	12/09/2018	S	JAR, ICE	1	√						√								
13	TR6-05	12/09/2018	S	JAR, ICE	1	√						√								
14	TR6-06	12/09/2018	S	JAR, ICE	1	√						√								
15	TR6-07	12/09/2018	S	JAR, ICE	1	√						√								
16	TR6-08	12/09/2018	S	JAR, ICE	1	√						√								
17	TR6-09	12/09/2018	S	JAR, ICE	1	√						√								
18	TR6-10	12/09/2018	S	JAR, ICE	1	√						√								
19	TR6-11	12/09/2018	S	JAR, ICE	1	√						√								
20	TR6-SP1	12/09/2018	S	JAR, ICE	1	√						√								
21	L3-12.9.18	12/09/2018	S	JAR, ICE	1	√						√								
				TOTAL	19															

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

(8)

CHAIN OF CUSTODY

ALS Laboratory: please tick →

ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0390 E: adelaide@alsglobal.com
BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com
NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com
WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: COVA Thinking Pty Ltd	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	✠ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: 5, 40 Molle Street, hobart, TAS, 7000		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: Oatlands DSI	ALS QUOTE NO.: EN-222-17 and ME/463/17	COC SEQUENCE NUMBER (Circle)	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 4193.005		COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Fiona Keserue-Ponte	CONTACT PH: 0417 523 625	OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Fiona Keserue-Ponte	SAMPLER MOBILE: 0417 523 625	RELINQUISHED BY:	RECEIVED BY: Fiona (AS)
COC emailed to ALS? (YES)	EDD FORMAT (or default):	*Fiona Keserue-Ponte*	DATE/TIME: 2/11/18 @ 11-40
Email Reports to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com		DATE/TIME: 1pm 1/11/2018	RELINQUISHED BY: Fiona (AS) DATE/TIME: 5/11/18 @ 12-40
Email Invoice to (will default to PM if no other addresses are listed): fiona.keserue-ponte@covathinking.com			RECEIVED BY: DATE/TIME: 5/11 1.35pm

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).														Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-4 (TRH (C6-C40 + BTEXN)	S-4 SG (TRH (C6-C40 + BTEXN)	S-7 (TRH (C6-C4-) / BTEXN / PAH	S-7 SG (TRH (C6-C4-) / BTEXN / PAH	S-24 (TRH (C6-C4-) / BTEXN / PAH plus Phanols		S-3 (15 Metals NEPM suite)	P-22 (NEPM screen for soil Classification)		S-12 (OC & OP pasticides)	EP 202 (Phenoxy acid herbicides)	W-4 (TRH (C6-C40 + BTEXN)	W-3 (15 Metals NEPM suite)	w-18 (TRC C6-c10) + btexn		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	Triplicate 2 (see comment)	1/11/2018	S	JAR, ICE	1															Please send to Eurofins
	trip blank	1/11/2018	W	BOTTLE	1														√	
	triplicate 1	1/11/2018	S	JAR, ICE	1		√					√								
	duplicate	1/11/2018	S	JAR, ICE	1	√														
	rinsate - bucket	1/11/2018	w	bottles	4												√	√		
	TP17-01	1/11/2018	S	JAR, ICE	1		√					√								
	TP17-02	1/11/2018	S	JAR, ICE	1	√						√								
	TP18-01	1/11/2018	S	JAR, ICE	1	√						√								
	TP18-02	1/11/2018	S	JAR, ICE	1	√						√								
	TP19-01	1/11/2018	S	JAR, ICE	1	√						√								
	TP19-02	1/11/2018	S	JAR, ICE	1		√					√								
	L2-V1	1/11/2018	S	JAR, ICE	1	√						√								
	L2-V2	1/11/2018	S	JAR, ICE	1	√						√								
	L2-V3	1/11/2018	S	JAR, ICE	1	√						√								
	L2-V4	1/11/2018	S	JAR, ICE	1	√						√								
	L2-V5	1/11/2018	S	JAR, ICE	1	√						√								
	L1-V1	1/11/2018	S	JAR, ICE	1	√														
	L1-V2	1/11/2018	S	JAR, ICE	1	√														
	L1-V3	1/11/2018	S	JAR, ICE	1	√														
	L3-V1	1/11/2018	S	JAR, ICE	1	√														
				TOTAL	23															

FREIGHT

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

626332

eurofins | mgt

☐ **Sydney**
Unit F3 - 6 Building F, 16 Mars Road, Lane Cove
Phone: +612 9900 8400
Email: EnviroSampleNSW@eurofins.com.au

☐ **Brisbane**
Unit 1-21 Smallwood Place, Murrarie
Phone: +617 3902 4600
Email: EnviroSampleQLD@eurofins.com.au

☑ **Melbourne**
2 Kingston Town Close, Oakleigh, VIC 3166
Phone: +613 8564 5000 Fax: +613 8564 5090
Email: EnviroSampleVic@eurofins.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name :	COVA Thinking Pty. Ltd.	**Contact Name:**	Fiona Keserue-Ponte	**Purchase Order :**	4193.005
Office Address :	5, 40 Molle Street, Hobart, TAS, 7000	**Project Manager :**	Fiona Keserue-Ponte	**PROJECT Number :**	4193.005
		Email for results :	fiona.keserue-ponte@covathinking.com	**PROJECT Name :**	Oatlands DSI and remediation

COC Number :

Eurofins | mgt quote ID :

Data output format:

Special Directions & Comments :

Transfer from ALS

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	BTEXN & TRH (silica gel cleanup)	PAH	15 metals (NEPM)
1	Triplicate 2	1/11/2018	S	√		√
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

1LP	250P	125P	1LA	40mL vial	125mL A	Jar	
						√	

Sample comments:

Laboratory Staff

Relinquished By: Fiona Keserue-Ponte Via ALS
Date & Time:: ALS tracking
Signature: FKP

Received By: Catherine Hoffmann
Date & Time: 7/11 8.30
Signature:

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☐
5 DAY ☑ 10 DAY ☐ Other:

Method Of Shipment

☑ Courier
☐ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival:

Report number: 626332

Enviro Sample Vic

From: Michael Cassidy
Sent: Wednesday, 7 November 2018 8:30 AM
To: Enviro Sample Vic
Subject: FW: 4193.005 Triplicate 2 COC
Attachments: image001.png; image002.png; image003.png; image004.png; image005.png; image006.png; Eurofins COC - Oatlands 1 Nov.xls

Hi Mark,

I sent this COC last week, this is in reference to report 626332, samples currently on hold,

Thanks,

HOLD
NC074144 - 600

Kind Regards,

Michael Cassidy

Phone: 8564 5940
Mobile: 0498 700 069
Email : MichaelCassidy@eurofins.com

From: Fiona Keserue-Ponte [mailto:Fiona.Keserue-Ponte@covathinking.com]
Sent: Thursday, 1 November 2018 5:45 PM
To: Onur Mehmet; Michael Cassidy
Cc: Carly Clark
Subject: 4193.005 Triplicate 2 COC

EXTERNAL EMAIL*

Hi Onur, Michael,

Please find COC attached for a soil sample which may reach you tomorrow from ALS, or latest Monday.

As per the last previous sets of samples, ALS will be transferring the sample to you rather than it coming direct from COVA.

Please communicate to the lab. receival.

Thank you.
Fiona

Fiona Keserue-Ponte
Principal Environmental Scientist - CEnvP & CEnvP SC

40 Molle Street, Hobart TAS 7000

O+61 E Fiona.Keserue-Ponte@covathinking.com
M3 Whttp://webdefence.global.blackspider.com/urlwrap/?q=AXicE2RmWCLMwHBCkYGhKKfSwDBJr7ioTC
6212 vpCg_Ry85P5eh3NHQLMusuMLAxMDC3JzBNzM5IzE1xzmxuDgzpdIhtbQoPy0zrxisNKOkpMBKX7-
4400 8vBzILUssycjMy87MSwfLMTDwcDEwAAAz3ySJ&Z
+61
417
523

COVA
Stronger Together

Appendix Q – Laboratory Sample Receipt Notifications

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1802453**

Client	: **SEMF PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Fiona.Keserue-Ponte@semf.com.au	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Facsimile	: +61 03 6212 4475	Facsimile	: +61-3-8549 9601
Project	: Outlands DSI	Page	: 1 of 4
Order number	: 4193.005	Quote number	: EM2017SEMFPTY0002 (ME/463/17)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: FIONA KESERUE-PONTE		

Dates

Date Samples Received	: 02-Feb-2018 12:25	Issue Date	: 07-Feb-2018
Client Requested Due Date	: 09-Feb-2018	Scheduled Reporting Date	: **09-Feb-2018**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 3	Temperature	: 10.4°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 47 / 40

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples (#41-#47) were received by ALS on 07/02/18at 10:15 am.**
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale, ALS Sydney & ALS Newcastle.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - P-22 (Melb) Soil Characterisation Package	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-07 TRH/BTEXN/PAH (SIM)
EM1802453-004	31-Jan-2018 00:00	duplicate 2	✓		✓	✓
EM1802453-005	31-Jan-2018 00:00	NEPM 1	✓	✓		
EM1802453-006	31-Jan-2018 00:00	NEPM 2	✓	✓		
EM1802453-007	31-Jan-2018 00:00	NEPM 3	✓	✓		
EM1802453-009	31-Jan-2018 00:00	TP1-02	✓		✓	
EM1802453-011	31-Jan-2018 00:00	TP2-02	✓		✓	✓
EM1802453-013	31-Jan-2018 00:00	TP3-02	✓		✓	✓
EM1802453-014	31-Jan-2018 00:00	TP4-01	✓		✓	✓
EM1802453-015	31-Jan-2018 00:00	TP4-02	✓		✓	
EM1802453-017	31-Jan-2018 00:00	TP5-02	✓		✓	
EM1802453-018	31-Jan-2018 00:00	TP6-01	✓		✓	✓
EM1802453-020	31-Jan-2018 00:00	TP7-01	✓		✓	✓
EM1802453-021	31-Jan-2018 00:00	TP7-02	✓		✓	
EM1802453-022	31-Jan-2018 00:00	DUPLICATE 1	✓		✓	
EM1802453-023	31-Jan-2018 00:00	TP8-01	✓		✓	✓
EM1802453-024	31-Jan-2018 00:00	TP8-02	✓		✓	
EM1802453-025	31-Jan-2018 00:00	TP9-01	✓		✓	✓
EM1802453-027	31-Jan-2018 00:00	TP10-01	✓		✓	✓
EM1802453-028	31-Jan-2018 00:00	TP10-02	✓		✓	
EM1802453-029	31-Jan-2018 00:00	TP13-01	✓		✓	
EM1802453-030	31-Jan-2018 00:00	TP13-02	✓		✓	✓
EM1802453-031	31-Jan-2018 00:00	TP11-01	✓		✓	✓
EM1802453-032	31-Jan-2018 00:00	TP11-02	✓		✓	✓
EM1802453-033	31-Jan-2018 00:00	TP12-01	✓		✓	✓
EM1802453-034	31-Jan-2018 00:00	TP12-02	✓		✓	
EM1802453-035	31-Jan-2018 00:00	TP12-03	✓		✓	✓
EM1802453-036	31-Jan-2018 00:00	TP16-01	✓		✓	✓
EM1802453-037	31-Jan-2018 00:00	TP16-02	✓		✓	✓
EM1802453-038	31-Jan-2018 00:00	TP14-01	✓		✓	
EM1802453-039	31-Jan-2018 00:00	TP15-01	✓		✓	
EM1802453-040	31-Jan-2018 00:00	TP15-02	✓		✓	✓
EM1802453-041	06-Feb-2018 00:00	triplicate 1	✓		✓	✓
EM1802453-042	06-Feb-2018 00:00	TP1-01	✓		✓	✓
EM1802453-043	06-Feb-2018 00:00	TP2-01	✓		✓	✓
EM1802453-044	06-Feb-2018 00:00	TP3-01	✓		✓	✓

			SOIL - EA055-103 Moisture Content	SOIL - P-22 (Melb) Soil Characterisation Package	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-07 TRH/BTEXN/PAH (SIM)
EM1802453-045	06-Feb-2018 00:00	TP5-01	✓		✓	✓
EM1802453-046	06-Feb-2018 00:00	TP6-02	✓		✓	
EM1802453-047	06-Feb-2018 00:00	TP9-02	✓		✓	

Matrix: **SOIL**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	SOIL - EP202(solids) Phenoxyacetic acids	SOIL - S-07 SG TRH/BTEXN/PAH (SIM) inc Silica Gel Clean Up	SOIL - S-12 OC/OP Pesticides
EM1802453-009	31-Jan-2018 00:00	TP1-02		✓	
EM1802453-015	31-Jan-2018 00:00	TP4-02		✓	
EM1802453-017	31-Jan-2018 00:00	TP5-02		✓	
EM1802453-021	31-Jan-2018 00:00	TP7-02		✓	
EM1802453-022	31-Jan-2018 00:00	DUPLICATE 1		✓	
EM1802453-024	31-Jan-2018 00:00	TP8-02		✓	
EM1802453-028	31-Jan-2018 00:00	TP10-02		✓	
EM1802453-029	31-Jan-2018 00:00	TP13-01		✓	
EM1802453-034	31-Jan-2018 00:00	TP12-02		✓	
EM1802453-035	31-Jan-2018 00:00	TP12-03	✓		✓
EM1802453-038	31-Jan-2018 00:00	TP14-01		✓	
EM1802453-039	31-Jan-2018 00:00	TP15-01		✓	
EM1802453-046	06-Feb-2018 00:00	TP6-02		✓	
EM1802453-047	06-Feb-2018 00:00	TP9-02		✓	

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-04 TRH/BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN
EM1802453-001	31-Jan-2018 00:00	rinsate digger	✓	✓	
EM1802453-002	31-Jan-2018 00:00	TB1			✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	accounts@semf.com.au

FIONA KESERUE-PONTE

- *AU Certificate of Analysis - NATA (COA)	Email	Fiona.Keserue-Ponte@semf.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Fiona.Keserue-Ponte@semf.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Fiona.Keserue-Ponte@semf.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Fiona.Keserue-Ponte@semf.com.au
- A4 - AU Tax Invoice (INV)	Email	Fiona.Keserue-Ponte@semf.com.au
- Attachment - Report (SUBCO)	Email	Fiona.Keserue-Ponte@semf.com.au
- Chain of Custody (CoC) (COC)	Email	Fiona.Keserue-Ponte@semf.com.au
- EDI Format - ENMRG (ENMRG)	Email	Fiona.Keserue-Ponte@semf.com.au
- EDI Format - ESDAT (ESDAT)	Email	Fiona.Keserue-Ponte@semf.com.au

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1802479**

Client	: **SEMF PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Fiona.Keserue-Ponte@semf.com.au	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Facsimile	: +61 03 6212 4475	Facsimile	: +61-3-8549 9601
Project	: Oatlands DSI	Page	: 1 of 4
Order number	: 4193.005	Quote number	: EM2017SEMFPTY0002 (ME/463/17)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: FIONA KESERUE-PONTE		

Dates

Date Samples Received	: 05-Feb-2018 11:05	Issue Date	: 05-Feb-2018
Client Requested Due Date	: 13-Feb-2018	Scheduled Reporting Date	: **13-Feb-2018**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 2	Temperature	: 8.0°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 44 / 44

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale & ALS Sydney.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-07 TRH/BTEXN/PAH (SIM)	SOIL - S-24 TRH/BTEXN/PAH + Phenols
EM1802479-001	01-Feb-2018 00:00	Triplicate 3	✓	✓	✓	
EM1802479-004	01-Feb-2018 00:00	Duplicate 3	✓	✓		✓
EM1802479-006	01-Feb-2018 00:00	Triplicate 5	✓	✓		✓
EM1802479-007	01-Feb-2018 00:00	T13-01	✓	✓	✓	
EM1802479-008	01-Feb-2018 00:00	T13-02	✓	✓	✓	
EM1802479-009	01-Feb-2018 00:00	T15-01	✓	✓		✓
EM1802479-010	01-Feb-2018 00:00	T15-02	✓	✓		✓
EM1802479-011	01-Feb-2018 00:00	T15-03	✓	✓		✓
EM1802479-012	01-Feb-2018 00:00	T15-04	✓	✓		✓
EM1802479-013	01-Feb-2018 00:00	T15-05	✓	✓		✓
EM1802479-014	01-Feb-2018 00:00	T15-06	✓	✓		✓
EM1802479-015	01-Feb-2018 00:00	T15-07	✓	✓		✓
EM1802479-016	01-Feb-2018 00:00	T15-08	✓	✓		✓
EM1802479-017	01-Feb-2018 00:00	T5-01	✓	✓		✓
EM1802479-018	01-Feb-2018 00:00	T5-02	✓	✓		✓
EM1802479-019	01-Feb-2018 00:00	T5-03	✓	✓		✓
EM1802479-020	01-Feb-2018 00:00	T5-04	✓	✓		✓
EM1802479-021	01-Feb-2018 00:00	T5-05	✓	✓		✓
EM1802479-022	01-Feb-2018 00:00	T5-06	✓	✓		✓
EM1802479-023	01-Feb-2018 00:00	T5-07	✓	✓		✓
EM1802479-024	01-Feb-2018 00:00	T5-08	✓	✓		✓
EM1802479-025	01-Feb-2018 00:00	T5-09	✓	✓		✓
EM1802479-026	01-Feb-2018 00:00	T4-01	✓	✓		✓
EM1802479-027	01-Feb-2018 00:00	T4-02	✓	✓		✓
EM1802479-028	01-Feb-2018 00:00	T4-03	✓	✓		✓
EM1802479-029	01-Feb-2018 00:00	T4-04	✓	✓		✓
EM1802479-030	01-Feb-2018 00:00	T4-05	✓	✓		✓
EM1802479-031	01-Feb-2018 00:00	T14-01	✓	✓		✓
EM1802479-032	01-Feb-2018 00:00	T14-02	✓	✓		✓
EM1802479-033	01-Feb-2018 00:00	T14-03	✓	✓		✓
EM1802479-034	01-Feb-2018 00:00	T14-04	✓	✓		✓
EM1802479-035	01-Feb-2018 00:00	T6-01	✓			✓
EM1802479-036	01-Feb-2018 00:00	T6-02	✓			✓
EM1802479-037	01-Feb-2018 00:00	T11-01	✓			✓
EM1802479-038	01-Feb-2018 00:00	T11-02	✓			✓

			SOIL - EA055-103 Moisture Content	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-07 TRH/BTEXN/PAH (SIM)	SOIL - S-24 TRH/BTEXN/PAH + Phenols
EM1802479-039	01-Feb-2018 00:00	T11-03	✓			✓
EM1802479-040	01-Feb-2018 00:00	T11-04	✓			✓
EM1802479-041	01-Feb-2018 00:00	T11-05	✓			✓
EM1802479-042	01-Feb-2018 00:00	T11-06	✓			✓
EM1802479-043	01-Feb-2018 00:00	T11-07	✓			✓
EM1802479-044	01-Feb-2018 00:00	T11-08	✓			✓

Matrix: **SOIL**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	SOIL - EP202(solids) Phenoxyacetic acids	SOIL - S-12 OC/OP Pesticides
EM1802479-006	01-Feb-2018 00:00	Triplicate 5	✓	✓
EM1802479-026	01-Feb-2018 00:00	T4-01	✓	✓
EM1802479-027	01-Feb-2018 00:00	T4-02	✓	✓
EM1802479-028	01-Feb-2018 00:00	T4-03	✓	✓
EM1802479-029	01-Feb-2018 00:00	T4-04	✓	✓
EM1802479-030	01-Feb-2018 00:00	T4-05	✓	✓
EM1802479-035	01-Feb-2018 00:00	T6-01	✓	✓
EM1802479-036	01-Feb-2018 00:00	T6-02	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-04 TRH/BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN
EM1802479-002	01-Feb-2018 00:00	Rinsate auger	✓	✓	
EM1802479-003	01-Feb-2018 00:00	TB2			✓
EM1802479-005	01-Feb-2018 00:00	rinsate excavator	✓	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	accounts@semf.com.au

FIONA KESERUE-PONTE

- *AU Certificate of Analysis - NATA (COA)	Email	Fiona.Keserue-Ponte@semf.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Fiona.Keserue-Ponte@semf.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Fiona.Keserue-Ponte@semf.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Fiona.Keserue-Ponte@semf.com.au
- A4 - AU Tax Invoice (INV)	Email	Fiona.Keserue-Ponte@semf.com.au
- Chain of Custody (CoC) (COC)	Email	Fiona.Keserue-Ponte@semf.com.au
- EDI Format - ENMRG (ENMRG)	Email	Fiona.Keserue-Ponte@semf.com.au
- EDI Format - ESDAT (ESDAT)	Email	Fiona.Keserue-Ponte@semf.com.au

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1802495**

Client	: **SEMF PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Fiona.Keserue-Ponte@semf.com.au	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Facsimile	: +61 03 6212 4475	Facsimile	: +61-3-8549 9601
Project	: Oatlands DSI	Page	: 1 of 3
Order number	: 4193.005	Quote number	: EM2017SEMFPTY0002 (ME/463/17)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: FIONA KESERUE-PONTE		

Dates

Date Samples Received	: 05-Feb-2018 11:05	Issue Date	: 05-Feb-2018
Client Requested Due Date	: 12-Feb-2018	Scheduled Reporting Date	: **12-Feb-2018**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 2	Temperature	: 8.0°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 22 / 22

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EM1802495-018 : [02-Feb-2018] : DUPLICATE 1 (2/2/18)
EM1802495-019 : [02-Feb-2018] : RINSATE EXCAVATOR BUCKET
EM1802495-020 : [02-Feb-2018] : RINSATE TROWEL (2/2/2018)

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	SOIL - EA055-103 Moisture Content	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-07 TRH/BTEXN/PAH (SIM)	SOIL - S-24 TRH/BTEXN/PAH + Phenols
EM1802495-001	02-Feb-2018 00:00	T2-WALL1	✓	✓	✓	
EM1802495-002	02-Feb-2018 00:00	T2-WALL2	✓	✓	✓	
EM1802495-003	02-Feb-2018 00:00	T2-WALL3	✓	✓	✓	
EM1802495-004	02-Feb-2018 00:00	T2-WALL4	✓	✓	✓	
EM1802495-005	02-Feb-2018 00:00	T2-BASE	✓	✓	✓	
EM1802495-006	02-Feb-2018 00:00	T3-FUEL LINE	✓			✓
EM1802495-007	02-Feb-2018 00:00	T3-BOWSER BASE	✓			✓
EM1802495-008	02-Feb-2018 00:00	BACKFILL SAND	✓			✓
EM1802495-009	02-Feb-2018 00:00	T3 STOCKPILE 1	✓			✓
EM1802495-010	02-Feb-2018 00:00	T3 STOCKPILE 2	✓			✓
EM1802495-011	02-Feb-2018 00:00	T3-WALL 1	✓			✓
EM1802495-012	02-Feb-2018 00:00	T3-WALL 2	✓			✓
EM1802495-013	02-Feb-2018 00:00	T3-WALL 3	✓			✓
EM1802495-014	02-Feb-2018 00:00	T3-WALL 4	✓			✓
EM1802495-015	02-Feb-2018 00:00	T3-BASE	✓			✓
EM1802495-016	02-Feb-2018 00:00	T3 WASTE SOIL	✓			✓
EM1802495-017	02-Feb-2018 00:00	TRIPLICATE 7	✓	✓	✓	
EM1802495-018	02-Feb-2018 00:00	DUPLICATE 1 (2/2/18)	✓			✓

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
EM1802495-019	02-Feb-2018 00:00	RINSATE EXCAVATOR BU.			✓
EM1802495-020	02-Feb-2018 00:00	RINSATE TROWEL (2/2/...			✓
EM1802495-021	02-Feb-2018 00:00	TANK WATER	✓		✓
EM1802495-022	02-Feb-2018 00:00	TRIP BLANK		✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	accounts@semf.com.au

FIONA KESERUE-PONTE

- *AU Certificate of Analysis - NATA (COA)	Email	Fiona.Keserue-Ponte@semf.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Fiona.Keserue-Ponte@semf.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Fiona.Keserue-Ponte@semf.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Fiona.Keserue-Ponte@semf.com.au
- A4 - AU Tax Invoice (INV)	Email	Fiona.Keserue-Ponte@semf.com.au
- Chain of Custody (CoC) (COC)	Email	Fiona.Keserue-Ponte@semf.com.au
- EDI Format - ENMRG (ENMRG)	Email	Fiona.Keserue-Ponte@semf.com.au
- EDI Format - ESDAT (ESDAT)	Email	Fiona.Keserue-Ponte@semf.com.au

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1803452**

Client	: **SEMF PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Fiona.Keserue-Ponte@semf.com.au	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Facsimile	: +61 03 6212 4475	Facsimile	: +61-3-8549 9601
Project	: Outlands DSI	Page	: 1 of 3
Order number	: 4193.005	Quote number	: EM2017SEMFPTY0002 (ME/463/17)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: FIONA KESERUE-PONTE		

Dates

Date Samples Received	: 22-Feb-2018 10:05	Issue Date	: 22-Feb-2018
Client Requested Due Date	: 01-Mar-2018	Scheduled Reporting Date	: **01-Mar-2018**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 13.6°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 34 / 34

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-25 TRH/BTEXN/PAH/Phenols/Pb
EM1803452-004	20-Feb-2018 00:00	triplicate 1	✓	✓
EM1803452-005	20-Feb-2018 00:00	triplicate 3	✓	✓
EM1803452-006	20-Feb-2018 00:00	duplicate 1	✓	✓
EM1803452-007	20-Feb-2018 00:00	duplicate 2	✓	✓
EM1803452-008	20-Feb-2018 00:00	T1-01	✓	✓
EM1803452-009	20-Feb-2018 00:00	T1-02	✓	✓
EM1803452-010	20-Feb-2018 00:00	T1-03	✓	✓
EM1803452-011	20-Feb-2018 00:00	T1-04	✓	✓
EM1803452-012	20-Feb-2018 00:00	T1-05	✓	✓
EM1803452-013	20-Feb-2018 00:00	T1-06	✓	✓
EM1803452-014	20-Feb-2018 00:00	T1-07	✓	✓
EM1803452-015	20-Feb-2018 00:00	T1-08	✓	✓
EM1803452-016	20-Feb-2018 00:00	T1-09	✓	✓
EM1803452-017	20-Feb-2018 00:00	T1-10	✓	✓
EM1803452-018	20-Feb-2018 00:00	T1-11	✓	✓
EM1803452-019	20-Feb-2018 00:00	T1-12	✓	✓
EM1803452-020	20-Feb-2018 00:00	T1-13	✓	✓
EM1803452-021	20-Feb-2018 00:00	T1-14	✓	✓
EM1803452-022	20-Feb-2018 00:00	DT1	✓	✓
EM1803452-023	20-Feb-2018 00:00	DT2	✓	✓
EM1803452-024	20-Feb-2018 00:00	A1	✓	✓
EM1803452-025	20-Feb-2018 00:00	A3-1	✓	✓
EM1803452-026	20-Feb-2018 00:00	A3-2	✓	✓
EM1803452-027	20-Feb-2018 00:00	A4	✓	✓
EM1803452-028	20-Feb-2018 00:00	B1	✓	✓
EM1803452-029	20-Feb-2018 00:00	B5	✓	✓
EM1803452-030	20-Feb-2018 00:00	B12-1	✓	✓
EM1803452-031	20-Feb-2018 00:00	B12-2	✓	✓
EM1803452-032	20-Feb-2018 00:00	B12-3	✓	✓
EM1803452-033	20-Feb-2018 00:00	B16	✓	✓
EM1803452-034	20-Feb-2018 00:00	B20	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
EM1803452-001	20-Feb-2018 00:00	TP6-water	✓		✓
EM1803452-002	20-Feb-2018 00:00	T3-rainwater	✓		✓
EM1803452-003	20-Feb-2018 00:00	trip blank		✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	accounts@semf.com.au

FIONA KESERUE-PONTE

- *AU Certificate of Analysis - NATA (COA)	Email	Fiona.Keserue-Ponte@semf.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Fiona.Keserue-Ponte@semf.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Fiona.Keserue-Ponte@semf.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Fiona.Keserue-Ponte@semf.com.au
- A4 - AU Tax Invoice (INV)	Email	Fiona.Keserue-Ponte@semf.com.au
- Chain of Custody (CoC) (COC)	Email	Fiona.Keserue-Ponte@semf.com.au
- EDI Format - ENMRG (ENMRG)	Email	Fiona.Keserue-Ponte@semf.com.au
- EDI Format - ESDAT (ESDAT)	Email	Fiona.Keserue-Ponte@semf.com.au

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1806900**

Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Fiona.Keserue-Ponte@covathinking.com	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Facsimile	: +61 03 6212 4475	Facsimile	: +61-3-8549 9626
Project	: Oatlands DSI	Page	: 1 of 2
Order number	: 4193.005	Quote number	: EM2017SEMFPTY0004 (EN/222/17)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: FIONA KESERUE-PONTE		

Dates

Date Samples Received	: 26-Apr-2018 11:40	Issue Date	: 27-Apr-2018
Client Requested Due Date	: 03-May-2018	Scheduled Reporting Date	: **03-May-2018**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 13.8°C
Receipt Detail	:	No. of samples received / analysed	: 3 / 3

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOLID**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOLID - EA156 Friability	SOLID - EA200B Asbestos Identification in Bulk Solids (Excluding
EM1806900-001	31-Jan-2018 00:00	ACM1	✓	✓
EM1806900-002	31-Jan-2018 00:00	ACM2	✓	✓
EM1806900-003	31-Jan-2018 00:00	ACM3	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	accounts@semf.com.au

FIONA KESERUE-PONTE

- *AU Certificate of Analysis - NATA (COA)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Tax Invoice (INV)	Email	Fiona.Keserue-Ponte@covathinking.com
- Chain of Custody (CoC) (COC)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ENMRG (ENMRG)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ESDAT (ESDAT)	Email	Fiona.Keserue-Ponte@covathinking.com

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EM1808830**		
Amendment	: **1**		
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Fiona.Keserue-Ponte@covathinking.com	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Facsimile	: +61 03 6212 4475	Facsimile	: +61-3-8549 9626
Project	: Oatlands DSI - Remediation	Page	: 1 of 4
Order number	: 4193.005	Quote number	: EM2017SEMFPTY0002 (ME/463/17)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: FKP		

Dates

Date Samples Received	: 04-Jun-2018 10:50	Issue Date	: 14-Jun-2018
Client Requested Due Date	: 18-Jun-2018	Scheduled Reporting Date	: **18-Jun-2018**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 5.9°C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 33 / 33

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method Client sample ID	Sample Container Received	Preferred Sample Container for Analysis
Asbestos Classification and Quantitation per NEPM 2013 : EA200N		
FILL1	- Miscellaneous Plastic Container	- Snap Lock Bag: Separate bag received
FILL2	- Miscellaneous Plastic Container	- Snap Lock Bag: Separate bag received
FILL3	- Miscellaneous Plastic Container	- Snap Lock Bag: Separate bag received
FILL4	- Miscellaneous Plastic Container	- Snap Lock Bag: Separate bag received
FILL5	- Miscellaneous Plastic Container	- Snap Lock Bag: Separate bag received
FILL6	- Miscellaneous Plastic Container	- Snap Lock Bag: Separate bag received
FILL7	- Miscellaneous Plastic Container	- Snap Lock Bag: Separate bag received
FILL8	- Miscellaneous Plastic Container	- Snap Lock Bag: Separate bag received
ACM-SP1	- Miscellaneous Plastic Container	- Snap Lock Bag: Separate bag received
SP-MET	- Miscellaneous Plastic Container	- Snap Lock Bag: Separate bag received
Asbestos Identification in Soils : EA200		
FILL1	- Miscellaneous Plastic Container	- Snap Lock Bag - ACM/Asbestos Grab Bag
FILL2	- Miscellaneous Plastic Container	- Snap Lock Bag - ACM/Asbestos Grab Bag
FILL3	- Miscellaneous Plastic Container	- Snap Lock Bag - ACM/Asbestos Grab Bag
FILL4	- Miscellaneous Plastic Container	- Snap Lock Bag - ACM/Asbestos Grab Bag
FILL5	- Miscellaneous Plastic Container	- Snap Lock Bag - ACM/Asbestos Grab Bag
FILL6	- Miscellaneous Plastic Container	- Snap Lock Bag - ACM/Asbestos Grab Bag
FILL7	- Miscellaneous Plastic Container	- Snap Lock Bag - ACM/Asbestos Grab Bag
FILL8	- Miscellaneous Plastic Container	- Snap Lock Bag - ACM/Asbestos Grab Bag
ACM-SP1	- Miscellaneous Plastic Container	- Snap Lock Bag - ACM/Asbestos Grab Bag
SP-MET	- Miscellaneous Plastic Container	- Snap Lock Bag - ACM/Asbestos Grab Bag

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-04 TRH/BTEXN
EM1808830-002	30-May-2018 00:00	TP10V-01	✓			✓
EM1808830-003	30-May-2018 00:00	TP10V-02	✓			✓
EM1808830-004	30-May-2018 00:00	TP10V-03	✓			✓
EM1808830-005	30-May-2018 00:00	TP10V-04	✓			✓
EM1808830-006	30-May-2018 00:00	TP10V-05	✓			✓
EM1808830-007	30-May-2018 00:00	TP10V-06	✓			✓
EM1808830-008	30-May-2018 00:00	Trip1.1 30.5	✓			✓
EM1808830-009	30-May-2018 00:00	TP10V-07	✓			✓
EM1808830-010	30-May-2018 00:00	TP10V-08	✓			✓

			SOIL - EA055-103 Moisture Content	SOIL - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-04 TRH/BTEXN
EM1808830-011	30-May-2018 00:00	TP10V-09	✓			✓
EM1808830-012	30-May-2018 00:00	TP10V-10	✓			✓
EM1808830-013	30-May-2018 00:00	TP10V-11	✓			✓
EM1808830-014	30-May-2018 00:00	TP10V-12	✓			✓
EM1808830-015	30-May-2018 00:00	TP10V-13	✓			✓
EM1808830-016	30-May-2018 00:00	TP10V-14	✓			✓
EM1808830-017	30-May-2018 00:00	TP10V-15	✓			✓
EM1808830-018	30-May-2018 00:00	TP10V-16	✓			✓
EM1808830-019	30-May-2018 00:00	TP10V-17	✓			✓
EM1808830-020	30-May-2018 00:00	TP10V-18	✓			✓
EM1808830-021	30-May-2018 00:00	TP10V-19	✓			✓
EM1808830-022	30-May-2018 00:00	TP10V-20	✓			✓
EM1808830-023	30-May-2018 00:00	TP10V-21	✓			✓
EM1808830-024	30-May-2018 00:00	FILL1	✓	✓	✓	
EM1808830-025	30-May-2018 00:00	FILL2	✓	✓	✓	
EM1808830-026	30-May-2018 00:00	FILL3	✓	✓	✓	
EM1808830-027	30-May-2018 00:00	FILL4	✓	✓	✓	
EM1808830-028	30-May-2018 00:00	FILL5	✓	✓	✓	
EM1808830-029	30-May-2018 00:00	FILL6	✓	✓	✓	
EM1808830-030	30-May-2018 00:00	FILL7	✓	✓	✓	
EM1808830-031	30-May-2018 00:00	FILL8	✓	✓	✓	
EM1808830-032	30-May-2018 00:00	ACM-SP1	✓	✓	✓	
EM1808830-033	30-May-2018 00:00	SP-MET		✓		

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	WATER - W-18 TRH(C6 - C9)/BTEXN
EM1808830-001	30-May-2018 00:00	Trip Blank	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	ap@covathinking.com

FIONA KESERUE-PONTE

- *AU Certificate of Analysis - NATA (COA)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Tax Invoice (INV)	Email	Fiona.Keserue-Ponte@covathinking.com
- Attachment - Report (SUBCO)	Email	Fiona.Keserue-Ponte@covathinking.com
- Chain of Custody (CoC) (COC)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ENMRG (ENMRG)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ESDAT (ESDAT)	Email	Fiona.Keserue-Ponte@covathinking.com

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1808910**

Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Fiona.Keserue-Ponte@covathinking.com	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Facsimile	: +61 03 6212 4475	Facsimile	: +61-3-8549 9626
Project	: Oatlands DSI	Page	: 1 of 3
Order number	: 4193.005	Quote number	: EM2017SEMFPTY0002 (ME/463/17)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	:		
Sampler	: FIONA KESERUE-PONTE		

Dates

Date Samples Received	: 31-May-2018 09:40	Issue Date	: 01-Jun-2018
Client Requested Due Date	: 07-Jun-2018	Scheduled Reporting Date	: **07-Jun-2018**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 4.3°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 11 / 11

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-04 TRH/BTEXN
EM1808910-003	28-May-2018 00:00	SV1	✓		✓
EM1808910-004	28-May-2018 00:00	SV2	✓		✓
EM1808910-005	28-May-2018 00:00	SV3	✓		✓
EM1808910-006	28-May-2018 00:00	SV4	✓		✓
EM1808910-007	28-May-2018 00:00	SV5	✓		✓
EM1808910-008	28-May-2018 00:00	SV6	✓		✓
EM1808910-009	28-May-2018 00:00	Vtripl 1	✓		✓
EM1808910-010	28-May-2018 00:00	T14-03-v01	✓	✓	
EM1808910-011	28-May-2018 00:00	SP-MET	✓	✓	

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-04 TRH/BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN
EM1808910-001	28-May-2018 00:00	rinsate-trowel	✓	✓	
EM1808910-002	28-May-2018 00:00	trip blank			✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	ap@covathinking.com

FIONA KESERUE-PONTE

- *AU Certificate of Analysis - NATA (COA)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Tax Invoice (INV)	Email	Fiona.Keserue-Ponte@covathinking.com
- Chain of Custody (CoC) (COC)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ENMRG (ENMRG)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ESDAT (ESDAT)	Email	Fiona.Keserue-Ponte@covathinking.com

Iona

- A4 - AU Tax Invoice (INV)	Email	iona.keserue-ponte@covathinking.com

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1809075**

Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Fiona.Keserue-Ponte@covathinking.com	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Facsimile	: +61 03 6212 4475	Facsimile	: +61-3-8549 9626
Project	: Oatlands DSI	Page	: 1 of 2
Order number	: 4193.005	Quote number	: EM2017SEMFPTY0002 (ME/463/17)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: FKP		

Dates

Date Samples Received	: 05-Jun-2018 11:10	Issue Date	: 07-Jun-2018
Client Requested Due Date	: 13-Jun-2018	Scheduled Reporting Date	: **13-Jun-2018**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 6.5°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 12 / 12

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - P-20/1 TAS EPA 105 (no TBT)	SOIL - S-04 TRH/BTEXN	SOIL - S-18 TRH(C6-C9)/BTEXN
EM1809075-001	01-Jun-2018 00:00	trip blank	✓			✓
EM1809075-002	01-Jun-2018 00:00	Tripl 1	✓	✓		
EM1809075-003	01-Jun-2018 00:00	C1	✓		✓	
EM1809075-004	01-Jun-2018 00:00	C2	✓		✓	
EM1809075-005	01-Jun-2018 00:00	C3	✓		✓	
EM1809075-006	01-Jun-2018 00:00	C4	✓		✓	
EM1809075-007	01-Jun-2018 00:00	E1	✓		✓	
EM1809075-008	01-Jun-2018 00:00	D1	✓	✓		
EM1809075-009	01-Jun-2018 00:00	D2	✓	✓		
EM1809075-010	01-Jun-2018 00:00	D3	✓	✓		
EM1809075-011	01-Jun-2018 00:00	D4	✓	✓		
EM1809075-012	01-Jun-2018 00:00	D5	✓	✓		

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	ap@covathinking.com

FIONA KESERUE-PONTE

- *AU Certificate of Analysis - NATA (COA)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Tax Invoice (INV)	Email	Fiona.Keserue-Ponte@covathinking.com
- Chain of Custody (CoC) (COC)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ENMRG (ENMRG)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ESDAT (ESDAT)	Email	Fiona.Keserue-Ponte@covathinking.com
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	Fiona.Keserue-Ponte@covathinking.com

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1810131**

Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Fiona.Keserue-Ponte@covathinking.com	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Facsimile	: +61 03 6212 4475	Facsimile	: +61-3-8549 9626
Project	: Oatlands DSI - Remediation	Page	: 1 of 3
Order number	: 4193.005	Quote number	: EM2017SEMFPTY0004 (EN/222/17)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: FIONA KESERUE-PONTE		

Dates

Date Samples Received	: 25-Jun-2018 23:20	Issue Date	: 25-Jun-2018
Client Requested Due Date	: 02-Jul-2018	Scheduled Reporting Date	: **02-Jul-2018**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 1.9°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 10 / 10

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-04 TRH/BTEXN
EM1810131-002	21-Jun-2018 00:00	Triplicate 1	✓	✓
EM1810131-003	21-Jun-2018 00:00	Trench 1a	✓	✓
EM1810131-004	21-Jun-2018 00:00	Trench 1b	✓	✓
EM1810131-005	21-Jun-2018 00:00	Trench 2a	✓	✓
EM1810131-006	21-Jun-2018 00:00	Trench 3a	✓	✓
EM1810131-007	21-Jun-2018 00:00	Trench 3b	✓	✓
EM1810131-008	21-Jun-2018 00:00	Trench 3c	✓	✓
EM1810131-009	21-Jun-2018 00:00	Trench 4a	✓	✓
EM1810131-010	21-Jun-2018 00:00	Trench 4b	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-18 TRH(C6 - C9)/BTEXN
EM1810131-001	21-Jun-2018 00:00	Trip Blank	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	ap@covathinking.com

FIONA KESERUE-PONTE

- *AU Certificate of Analysis - NATA (COA)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Tax Invoice (INV)	Email	Fiona.Keserue-Ponte@covathinking.com
- Chain of Custody (CoC) (COC)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ENMRG (ENMRG)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ESDAT (ESDAT)	Email	Fiona.Keserue-Ponte@covathinking.com

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1814835**

Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Fiona.Keserue-Ponte@covathinking.com	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Facsimile	: +61 03 6212 4475	Facsimile	: +61-3-8549 9626
Project	: Oatlands DSI	Page	: 1 of 3
Order number	: 4193.005	Quote number	: EM2017SEMFPTY0002 (ME/463/17)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: FIONA KESERUE-PONTE		

Dates

Date Samples Received	: 14-Sep-2018 09:45	Issue Date	: 17-Sep-2018
Client Requested Due Date	: 21-Sep-2018	Scheduled Reporting Date	: **21-Sep-2018**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 9.2°C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 26 / 26

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-04 SG TRH/BTEXN inc Silica Gel Clean Up	SOIL - S-04 TRH/BTEXN
EM1814835-002	12-Sep-2018 00:00	Triplicate 1	✓	✓		✓
EM1814835-003	12-Sep-2018 00:00	Duplicate 1	✓	✓		✓
EM1814835-004	12-Sep-2018 00:00	TR5-01	✓	✓		✓
EM1814835-005	12-Sep-2018 00:00	TR5-02	✓	✓		✓
EM1814835-006	12-Sep-2018 00:00	TR5-03	✓	✓	✓	
EM1814835-007	12-Sep-2018 00:00	TR5-04	✓	✓		✓
EM1814835-008	12-Sep-2018 00:00	TR5-05	✓	✓		✓
EM1814835-009	12-Sep-2018 00:00	TR6-01	✓	✓	✓	
EM1814835-010	12-Sep-2018 00:00	TR6-02	✓	✓		✓
EM1814835-011	12-Sep-2018 00:00	TR6-03	✓	✓	✓	
EM1814835-012	12-Sep-2018 00:00	TR6-04	✓	✓		✓
EM1814835-013	12-Sep-2018 00:00	TR6-05	✓	✓		✓
EM1814835-014	12-Sep-2018 00:00	TR6-06	✓	✓		✓
EM1814835-015	12-Sep-2018 00:00	TR6-07	✓	✓		✓
EM1814835-016	12-Sep-2018 00:00	TR6-08	✓	✓		✓
EM1814835-017	12-Sep-2018 00:00	TR6-09	✓	✓		✓
EM1814835-018	12-Sep-2018 00:00	TR6-10	✓	✓		✓
EM1814835-019	12-Sep-2018 00:00	TR6-11	✓	✓		✓
EM1814835-020	12-Sep-2018 00:00	TR6-SP1	✓	✓		✓
EM1814835-021	12-Sep-2018 00:00	L3-12.9.18	✓	✓		✓
EM1814835-022	12-Sep-2018 00:00	SWP01	✓	✓		✓
EM1814835-023	12-Sep-2018 00:00	SWP02	✓	✓		✓
EM1814835-024	12-Sep-2018 00:00	SWP03	✓	✓		✓
EM1814835-025	12-Sep-2018 00:00	SWP04	✓	✓		✓
EM1814835-026	12-Sep-2018 00:00	SWP05	✓	✓		✓

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	WATER - W-18 TRH(C6 - C9)/BTEXN
EM1814835-001	12-Sep-2018 00:00	Trip blank	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	ap@covathinking.com

FIONA KESERUE-PONTE

- *AU Certificate of Analysis - NATA (COA)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Tax Invoice (INV)	Email	Fiona.Keserue-Ponte@covathinking.com
- Chain of Custody (CoC) (COC)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ENMRG (ENMRG)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ESDAT (ESDAT)	Email	Fiona.Keserue-Ponte@covathinking.com

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1817751**

Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Fiona.Keserue-Ponte@covathinking.com	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6212 4400	Telephone	: +6138549 9630
Facsimile	: +61 03 6212 4475	Facsimile	: +61-3-8549 9626
Project	: Oatlands DSI	Page	: 1 of 3
Order number	: 4193.005	Quote number	: EM2017SEMFPTY0002 (ME/463/17)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: FIONA KESERUE-PONTE		

Dates

Date Samples Received	: 02-Nov-2018 11:40	Issue Date	: 05-Nov-2018
Client Requested Due Date	: 12-Nov-2018	Scheduled Reporting Date	: **12-Nov-2018**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 12.7°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 19 / 19

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-04 SG TRH/BTEXN inc Silica Gel Clean Up	SOIL - S-04 TRH/BTEXN
EM1817751-002	01-Nov-2018 00:00	Triplicate 1	✓	✓	✓	
EM1817751-003	01-Nov-2018 00:00	Duplicate	✓			✓
EM1817751-005	01-Nov-2018 00:00	TP17-01	✓	✓	✓	
EM1817751-006	01-Nov-2018 00:00	TP17-02	✓	✓		✓
EM1817751-007	01-Nov-2018 00:00	TP18-01	✓	✓		✓
EM1817751-008	01-Nov-2018 00:00	TP18-02	✓	✓		✓
EM1817751-009	01-Nov-2018 00:00	TP19-01	✓	✓		✓
EM1817751-010	01-Nov-2018 00:00	TP19-02	✓	✓	✓	
EM1817751-011	01-Nov-2018 00:00	L2-V1	✓	✓		✓
EM1817751-012	01-Nov-2018 00:00	L2-V2	✓	✓		✓
EM1817751-013	01-Nov-2018 00:00	L2-V3	✓	✓		✓
EM1817751-014	01-Nov-2018 00:00	L2-V4	✓	✓		✓
EM1817751-015	01-Nov-2018 00:00	L2-V5	✓	✓		✓
EM1817751-016	01-Nov-2018 00:00	L1-V1	✓			✓
EM1817751-017	01-Nov-2018 00:00	L1-V2	✓			✓
EM1817751-018	01-Nov-2018 00:00	L1-V3	✓			✓
EM1817751-019	01-Nov-2018 00:00	L3-V1	✓			✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-04 TRH/BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN
EM1817751-001	01-Nov-2018 00:00	Trip blank			✓
EM1817751-004	01-Nov-2018 00:00	Rinsate - bucket	✓	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	ap@covathinking.com

FIONA KESERUE-PONTE

- *AU Certificate of Analysis - NATA (COA)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Tax Invoice (INV)	Email	Fiona.Keserue-Ponte@covathinking.com
- Chain of Custody (CoC) (COC)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ENMRG (ENMRG)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ESDAT (ESDAT)	Email	Fiona.Keserue-Ponte@covathinking.com

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1818265**

Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Fiona.Keserue-Ponte@covathinking.com	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6212 4400	Telephone	: +6138549 9630
Facsimile	: +61 03 6212 4475	Facsimile	: +61-3-8549 9626
Project	: Oatlands DSI	Page	: 1 of 2
Order number	: 4193.005	Quote number	: EM2017SEMFPTY0002 (ME/463/17)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 02-Nov-2018 11:40	Issue Date	: 14-Nov-2018
Client Requested Due Date	: 19-Nov-2018	Scheduled Reporting Date	: **19-Nov-2018**

Delivery Details

Mode of Delivery	: Samples On Hand	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: ----
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **This is a rebatch of EM1817751.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EG005C Leachable Metals by ICPAES	SOIL - EN33a TCLP Leachate	SOIL - EP075 SIM PAH only SIM - PAH only	SOIL - W-02L 8 metals (TCLP)
EM1818265-001	01-Nov-2018 00:00	TP17-01	✓	✓	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	ap@covathinking.com

FIONA KESERUE-PONTE

- *AU Certificate of Analysis - NATA (COA)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Tax Invoice (INV)	Email	Fiona.Keserue-Ponte@covathinking.com
- Chain of Custody (CoC) (COC)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ENMRG (ENMRG)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ESDAT (ESDAT)	Email	Fiona.Keserue-Ponte@covathinking.com

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1820652**

Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Fiona.Keserue-Ponte@covathinking.com	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6212 4400	Telephone	: +6138549 9630
Facsimile	: +61 03 6212 4475	Facsimile	: +61-3-8549 9626
Project	: Oatlands DSI	Page	: 1 of 3
Order number	: 4193.005	Quote number	: EM2017SEMFPTY0002 (ME/463/17)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: FIONA KESERUE-PONTE		

Dates

Date Samples Received	: 20-Dec-2018 10:25	Issue Date	: 21-Dec-2018
Client Requested Due Date	: 08-Jan-2019	Scheduled Reporting Date	: **08-Jan-2019**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 13.0°C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 20 / 20

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP075 SIM PAH only SIM - PAH only	SOIL - PLACE HOLDER (S) Place Holder for Potential Analysis (Soil)	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)
EM1820652-001	18-Dec-2018 00:00	Trip 1	✓	✓	✓	✓
EM1820652-002	18-Dec-2018 00:00	Dup	✓	✓		✓
EM1820652-003	18-Dec-2018 00:00	MR01	✓	✓		✓
EM1820652-004	18-Dec-2018 00:00	MR02	✓	✓		✓
EM1820652-005	18-Dec-2018 00:00	MR03	✓	✓		✓
EM1820652-006	18-Dec-2018 00:00	MR04	✓	✓		✓
EM1820652-007	18-Dec-2018 00:00	MR05	✓	✓		✓
EM1820652-008	18-Dec-2018 00:00	MR06	✓	✓		✓
EM1820652-009	18-Dec-2018 00:00	MR07	✓	✓		✓
EM1820652-010	18-Dec-2018 00:00	MR08	✓	✓		✓
EM1820652-011	18-Dec-2018 00:00	MR09	✓	✓		✓
EM1820652-012	18-Dec-2018 00:00	MR10	✓	✓		✓
EM1820652-013	18-Dec-2018 00:00	MR11	✓	✓		✓
EM1820652-014	18-Dec-2018 00:00	MR12	✓	✓		✓
EM1820652-015	18-Dec-2018 00:00	MR13	✓	✓		✓
EM1820652-016	18-Dec-2018 00:00	MR14	✓	✓		✓
EM1820652-017	18-Dec-2018 00:00	MS01	✓	✓		✓
EM1820652-018	18-Dec-2018 00:00	MS02	✓	✓		✓
EM1820652-019	18-Dec-2018 00:00	MS03	✓	✓		✓
EM1820652-020	18-Dec-2018 00:00	MS04	✓	✓		✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	ap@covathinking.com

FIONA KESERUE-PONTE

- *AU Certificate of Analysis - NATA (COA)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Tax Invoice (INV)	Email	Fiona.Keserue-Ponte@covathinking.com
- Chain of Custody (CoC) (COC)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ENMRG (ENMRG)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ESDAT (ESDAT)	Email	Fiona.Keserue-Ponte@covathinking.com

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1900118**

Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Fiona.Keserue-Ponte@covathinking.com	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6212 4400	Telephone	: +6138549 9630
Facsimile	: +61 03 6212 4475	Facsimile	: +61-3-8549 9626
Project	: Oatlands DSI	Page	: 1 of 2
Order number	: 4193.005	Quote number	: EM2017SEMFPTY0002 (ME/463/17)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 20-Dec-2018 10:25	Issue Date	: 08-Jan-2019
Client Requested Due Date	: 15-Jan-2019	Scheduled Reporting Date	: **15-Jan-2019**

Delivery Details

Mode of Delivery	: Samples On Hand	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: ----
Receipt Detail	:	No. of samples received / analysed	: 3 / 3

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- This is a rebatch of EM1820652.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EG005C Leachable Metals by ICPAES	SOIL - EN33a TCLP Leachate
EM1900118-002	18-Dec-2018 00:00	Dup	✓	✓
EM1900118-018	18-Dec-2018 00:00	MS02	✓	✓
EM1900118-019	18-Dec-2018 00:00	MS03	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	ap@covathinking.com

FIONA KESERUE-PONTE

- *AU Certificate of Analysis - NATA (COA)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Tax Invoice (INV)	Email	Fiona.Keserue-Ponte@covathinking.com
- Chain of Custody (CoC) (COC)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ENMRG (ENMRG)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ESDAT (ESDAT)	Email	Fiona.Keserue-Ponte@covathinking.com

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1901520**

Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Fiona.Keserue-Ponte@covathinking.com	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6212 4400	Telephone	: +6138549 9630
Facsimile	: +61 03 6212 4475	Facsimile	: +61-3-8549 9626
Project	: Oatlands DSI	Page	: 1 of 2
Order number	: 4193.005	Quote number	: EM2017SEMFPTY0002 (ME/463/17)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 20-Dec-2018 10:25	Issue Date	: 06-Feb-2019
Client Requested Due Date	: 13-Feb-2019	Scheduled Reporting Date	: **13-Feb-2019**

Delivery Details

Mode of Delivery	: Samples On Hand	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: ----
Receipt Detail	:	No. of samples received / analysed	: 6 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- This is a rebatch of EM1900118 and EM1820652.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EG005C Leachable Metals by ICPAES	SOIL - EN020 Sample Compositing	SOIL - EN33a TCLP Leachate
EM1901520-001	18-Dec-2018 00:00	Dup		✓	
EM1901520-002	18-Dec-2018 00:00	MS01		✓	
EM1901520-003	18-Dec-2018 00:00	MS02		✓	
EM1901520-004	18-Dec-2018 00:00	MS03		✓	
EM1901520-005	18-Dec-2018 00:00	MS04		✓	
EM1901520-006	18-Dec-2018 00:00	Composite	✓		✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	ap@covathinking.com

CARLY CLARK

- *AU Certificate of Analysis - NATA (COA)	Email	carly.clark@covathinking.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	carly.clark@covathinking.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	carly.clark@covathinking.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	carly.clark@covathinking.com
- Chain of Custody (CoC) (COC)	Email	carly.clark@covathinking.com
- EDI Format - ENMRG (ENMRG)	Email	carly.clark@covathinking.com
- EDI Format - ESDAT (ESDAT)	Email	carly.clark@covathinking.com

FIONA KESERUE-PONTE

- *AU Certificate of Analysis - NATA (COA)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Tax Invoice (INV)	Email	Fiona.Keserue-Ponte@covathinking.com
- Chain of Custody (CoC) (COC)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ENMRG (ENMRG)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ESDAT (ESDAT)	Email	Fiona.Keserue-Ponte@covathinking.com

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1907330**

Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Fiona.Keserue-Ponte@covathinking.com	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6212 4400	Telephone	: +6138549 9630
Facsimile	: +61 03 6212 4475	Facsimile	: +61-3-8549 9626
Project	: Oatlands DSI	Page	: 1 of 3
Order number	: 4193.005	Quote number	: EM2017SEMFPTY0004 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: FKP		

Dates

Date Samples Received	: 15-May-2019 10:55	Issue Date	: 15-May-2019
Client Requested Due Date	: 22-May-2019	Scheduled Reporting Date	: **22-May-2019**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 0.8°C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 7 / 7

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)
EM1907330-001	14-May-2019 00:00	OPVal01	✓	✓
EM1907330-002	14-May-2019 00:00	OPVal02	✓	✓
EM1907330-003	14-May-2019 00:00	OPVal03	✓	✓
EM1907330-004	14-May-2019 00:00	OPVal04	✓	✓
EM1907330-005	14-May-2019 00:00	OPVal05	✓	✓
EM1907330-006	14-May-2019 00:00	Dup	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-03T 15 Metals (Total) (NEPM)
EM1907330-007	14-May-2019 00:00	Rinsate	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	ap@covathinking.com

FIONA KESERUE-PONTE

- *AU Certificate of Analysis - NATA (COA)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Fiona.Keserue-Ponte@covathinking.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Fiona.Keserue-Ponte@covathinking.com
- A4 - AU Tax Invoice (INV)	Email	Fiona.Keserue-Ponte@covathinking.com
- Chain of Custody (CoC) (COC)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ENMRG (ENMRG)	Email	Fiona.Keserue-Ponte@covathinking.com
- EDI Format - ESDAT (ESDAT)	Email	Fiona.Keserue-Ponte@covathinking.com

Melbourne
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NATA # 1261
Site # 1254 & 14271

Sydney
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16 Mars Road
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Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**SEMF (TAS) Pty Ltd**
Contact name:	Fiona Keserue Ponte
Project name:	OATLANDS DSI
Project ID:	4193.005
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Feb 5, 2018 3:37 PM
Eurofins | mgt reference:	**583301**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Michael Cassidy on Phone : or by e.mail: MichaelCassidy@eurofins.com

Results will be delivered electronically via e.mail to Fiona Keserue Ponte - fiona.keserue-ponte@semf.com.au.

eurofins | mgt

Melbourne
3-5 Kingston Town Close
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Site # 1254 & 14271

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16 Mars Road
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Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**SEMF (TAS) Pty Ltd**
Contact name:	Fiona Keserue Ponte
Project name:	OATLANDS DSI
Project ID:	4193.005
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Feb 22, 2018 10:58 AM
Eurofins | mgt reference:	**586154**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Michael Cassidy on Phone : or by e.mail: MichaelCassidy@eurofins.com

Results will be delivered electronically via e.mail to Fiona Keserue Ponte - fiona.keserue-ponte@semf.com.au.

Melbourne
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Site # 1254 & 14271

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ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**COVA (TAS) Pty Ltd**
Contact name:	Fiona Keserue Ponte
Project name:	OATLANDS DSI - REMEDIATION
Project ID:	4193.005
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Jun 1, 2018 3:15 PM
Eurofins | mgt reference:	**601338**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

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☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

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ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**COVA (TAS) Pty Ltd**
Contact name:	Fiona Keserue Ponte
Project name:	OATLANDS DSI - REMEDIATION
Project ID:	4193.005
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Jun 5, 2018 4:31 PM
Eurofins | mgt reference:	**601850**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Michael Cassidy on Phone : +61 3 8564 5000 or by e.mail: MichaelCassidy@eurofins.com

Results will be delivered electronically via e.mail to Fiona Keserue Ponte - fiona.keserue-ponte@semf.com.au.

eurofins | mgt

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ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**COVA (TAS) Pty Ltd**
Contact name:	Fiona Keserue Ponte
Project name:	OATLANDS DSI-REMEDIATION
Project ID:	4193.005
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Jun 26, 2018 2:03 PM
Eurofins | mgt reference:	**604769**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Michael Cassidy on Phone : +61 3 8564 5000 or by e.mail: MichaelCassidy@eurofins.com

Results will be delivered electronically via e.mail to Fiona Keserue Ponte - fiona.keserue-ponte@covathinking.com.

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NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**COVA (TAS) Pty Ltd**
Contact name:	Fiona Keserue Ponte
Project name:	OATLANDS DSI AND REMEDIATION
Project ID:	4196.005
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Sep 17, 2018 1:57 PM
Eurofins | mgt reference:	**618082**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Michael Cassidy on Phone : +61 3 8564 5000 or by e.mail: MichaelCassidy@eurofins.com

Results will be delivered electronically via e.mail to Fiona Keserue Ponte - fiona.keserue-ponte@covathinking.com.

eurofins | mgt

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Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**COVA (TAS) Pty Ltd**
Contact name:	Fiona Keserue Ponte
Project name:	OATLANDS DSI AND REMEDIATION
Project ID:	4193.005
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Nov 7, 2018 8:30 AM
Eurofins | mgt reference:	**626332**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Michael Cassidy on Phone : +61 3 8564 5000 or by e.mail: MichaelCassidy@eurofins.com

Results will be delivered electronically via e.mail to Fiona Keserue Ponte - fiona.keserue-ponte@covathinking.com.

Appendix R – Equipment Calibration Certificates

ThermoFisher SCIENTIFIC

The world leader in serving science

RENTALS

Equipment Report - MiniRAE 3000 PID

This Gas Meter has been performance checked and calibrated as follows:

Lamp	Compound	Concentration	Zero	Span	Traceability Lot #	Pass?
10.6 eV	Isobutylene	100 ppm	0.0 ppm	100.0 ppm	583367	☑

Alarm Limits

High	100 ppm
Low	50 ppm

Bump Test

Date	Target Gas	Reading	Pass?
18/1	100 ppm	99.9 ppm	☑

☑ Battery Status 100%
☑ 10 minutes test complete
☑ Spare battery status (Min 5.5 volts)
☑ Electrical Safety Tag attached (AS/NZS 3760)

☑ Performance check (pump, lamp, sensor)
☐ Data cleared
☑ Filters checked

Tag No: 000290

Valid to: 11/4/18

Date: 18/1/18

Signed: MJ

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $30 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
☑	☐	MiniRAE 2000 PID / Operational Check / Battery Status 100%
☑	☐	Lamp 10.6 eV, Compound Set to: Isobutylene C/factor: 1.00
☑	☐	Protective yellow rubber boot
☑	☐	Inlet probe (attached to PID)
☑	☐	Spare water trap filter(s) Qty 3
☑	☐	Charger 240V to 12V1250mA
☐	☐	Cradle and Travel Charger
☑	☐	Instruction Manual behind foam on the lid of case "
☑	☐	Quick Guide Sheet behind foam on the lid of case "
☑	☐	Spare Alkaline Battery Compartment with batteries
☑	☐	Inline Moisture trap Filter Guide Laminated
☐	☐	Calibration regulator & tubing (optional)
☐	☐	Data cable and Software CD (optional)
☑	☐	Carry Case
☑	☐	Check to confirm electrical safety (tag must be valid)

Date: 18/1/18

Signed: MJ

TFS Reference	CM008977	Return Date:	/ /
Customer Reference	0860-022	Return Time:	
Equipment ID	PID3000-58	Condition on return:	
Equipment Serial No.	—		

ThermoFisher SCIENTIFIC

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RENTALS

Equipment Report - MiniRAE 3000 PID

This Gas Meter has been performance checked and calibrated as follows:

Lamp	Compound	Concentration	Zero	Span	Traceability Lot #	Pass?
10.6 eV	Isobutylene	100 ppm	0 ppm	100 ppm	583367	☑

Alarm Limits

High	100 ppm
Low	50 ppm

Bump Test

Date	Target Gas	Reading	Pass?
15/2	100 ppm	100.2 ppm	☑

☑ Battery Status 100%
☑ 10 minutes test complete
☑ Spare battery status (Min 5.5 volts)
☑ Electrical Safety Tag attached (AS/NZS 3760)

Tag No: 000487

Valid to: 15-05-2018

☑ Performance check (pump, lamp, sensor)
☑ Data cleared
☑ Filters checked

Date: 16th Feb 2018

Signed: Mimi

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $30 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
☑	☐	MiniRAE 2000 PID / Operational Check / Battery Status 100%
☑	☐	Lamp 10.6 eV, Compound Set to: Isobutylene C/factor: 1.1
☑	☐	Protective yellow rubber boot
☑	☐	Inlet probe (attached to PID)
☑	☐	Spare water trap filter(s) Qty 03
☑	☐	Charger 240V to 12V1250mA
☑	☐	Cradle and Travel Charger
☑	☐	Instruction Manual behind foam on the lid of case "
☑	☐	Quick Guide Sheet behind foam on the lid of case "
☑	☐	Spare Alkaline Battery Compartment with batteries
☑	☐	Inline Moisture trap Filter Guide Laminated
☐	☐	Calibration regulator & tubing (optional)
☐	☐	Data cable and Software CD (optional)
☑	☐	Carry Case
☑	☐	Check to confirm electrical safety (tag must be valid)

Date: 16th Feb 2018

Signed: Mimi

TFS Reference	CM009112	Return Date:	/ /
Customer Reference	4193.005	Return Time:	
Equipment ID	PID3000-60	Condition on return:	
Equipment Serial No.			

ThermoFisher SCIENTIFIC

The world leader in serving science

RENTALS

Equipment Report - MiniRAE 3000 PID

This Gas Meter has been performance checked and calibrated as follows:

Lamp	Compound	Concentration	Zero	Span	Traceability Lot #	Pass?
10.6 eV	Isobutylene	100 ppm	0 ppm	100 ppm	583367	☑

Alarm Limits

High	100 ppm
Low	50 ppm

Bump Test

Date	Target Gas	Reading	Pass?
23MAY18	100 ppm	100.0 ppm	☑

☑ Battery Status 100%
☑ 10 minutes test complete
☑ Spare battery status: 5.93 V (Min 5.5 volts)
☑ Electrical Safety Tag attached (AS/NZS 3760)

☑ Performance check (lamp, sensor)
☑ Pump: 505 mL/min
☑ Data cleared
☑ Filters checked

Tag No: 000546

Valid to: 23/07/2018

Date: 23/05/2018

Signed: JMoya

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $30 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
☑	☐	MiniRAE 2000 PID / Operational Check / Battery Status 100%
☑	☐	Lamp 10.6 eV, Compound Set to: Isobutylene C/factor: 1.00
☑	☐	Protective yellow rubber boot
☑	☐	Inlet probe (attached to PID)
☑	☐	Spare water trap filter(s) Qty 3
☑	☐	Charger 240V to 12V1250mA
☑	☐	Cradle and Travel Charger
☑	☐	Instruction Manual behind foam on the lid of case "
☑	☐	Quick Guide Sheet behind foam on the lid of case "
☑	☐	Spare Alkaline Battery Compartment with batteries
☑	☐	Inline Moisture trap Filter Guide Laminated
☑	☐	Carry Case
☑	☐	Check to confirm electrical safety (tag must be valid)
☐	☐	Calibration regulator & tubing (optional)
☐	☐	Data cable and Software CD (optional)

Date: 24/05/18

Signed: JMoya

TFS Reference	CM009776	Return Date:	/ /
Customer Reference	4193.005	Return Time:	
Equipment ID	PID3000WA5	Condition on return:	
Equipment Serial No.			

"We do more than give you great equipment… We give you great solutions!"

Phone: (Free Call) 1300 735 295		Fax: (Free Call) 1800 675 123		Email: RentalsAU@Thermofisher.com
Melbourne Branch 5 Caribbean Drive, Scoresby 3179	Sydney Branch Level 1, 4 Talavera Road, North Ryde 2113	Adelaide Branch 27 Beulah Road, Norwood, South Australia 5067	Brisbane Branch Unit 2/5 Ross St Newstead 4006	Perth Branch 121 Beringarra Ave Malaga WA 6090

Calibration Test Certificate

2018-06-28 09:04:13

Device

Serial Number:	**SK313-000241**	Detector Type:	**GasAlertMicro 5**
Manufacturer:	**BW Technologies**	Next Cal Due:	**2018-12-25**

Test Result

Pass

Sensors

Type:	PID	H2S	CO	LEL	O2
Result:	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**
Final Reading:	**100.0 ppm**	**25.0 ppm**	**100.0 ppm**	**50.0 %**	**20.9 %**
Next Calibration Due:	**2018-12-25**	**2018-12-25**	**2018-12-25**	**2018-12-25**	**2018-12-25**

Set Points

Type:	PID	H2S	CO	LEL	O2
High Alarm:	**100.0 ppm**	**15.0 ppm**	**200.0 ppm**	**10.0 %**	**23.5 %**
Low Alarm:	**50.0 ppm**	**10.0 ppm**	**25.0 ppm**	**5.0 %**	**19.5 %**
TWA Alarm:	**50.0 ppm**	**10.0 ppm**	**25.0 ppm**		
STEL Alarm:	**100.0 ppm**	**15.0 ppm**	**50.0 ppm**		

Options

Datalog Interval:	**5 seconds**	Unit Programmed:	**N/A**
STEL Period:	**15 minutes**		

Test Station

Dock Serial Number:	**Z309-002181**	Dock Location:	

	Inlet 1:	Inlet 2:	Inlet 3:	Inlet 4:	Inlet 5:
Used:	**Yes**	**Yes**	**Yes**	**No**	**No**
Concentration:	**20.9 %**	**25.0**	**100.0 ppm**	**20.9 %**	**20.9 %**
Type:	**Purge**	**4 Gas Mixture 2.5% vol CH4**	**Isobutylene**	**Purge**	**Purge**
Notes:					

Bump Test Certificate

2018-06-28 09:25:56

Device

Serial Number:	**SK313-000241**	Detector Type:	**GasAlertMicro 5**
Manufacturer:	**BW Technologies**	Next Cal Due:	**2018-12-25**

Test Result

Pass

Sensors

Type:	PID	H2S	CO	LEL	O2
Result:	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**
Next Calibration Due:	**2018-12-25**	**2018-12-25**	**2018-12-25**	**2018-12-25**	**2018-12-25**

Acoustic Alarm:	**Pass**	Visual Alarm:	**Pass**

Test Station

Dock Serial Number:	**Z309-002181**	Dock Location:	

	Inlet 1:	Inlet 2:	Inlet 3:	Inlet 4:	Inlet 5:
Used:	**No**	**Yes**	**Yes**	**No**	**No**
Concentration:	**20.9 %**	**25.0**	**100.0 ppm**	**20.9 %**	**20.9 %**
Type:	**Purge**	**4 Gas Mixture 2.5% vol CH4**	**Isobutylene**	**Purge**	**Purge**
Notes:					

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RENTALS

Equipment Report - MiniRAE 3000 PID

This Gas Meter has been performance checked and calibrated as follows:

Lamp	Compound	Concentration	Zero	Span	Traceability Lot #	Pass?
10.6 eV	Isobutylene	100 ppm	0 ppm	100 ppm	583367	☑

Alarm Limits

High	100 ppm
Low	50 ppm

Bump Test

Date	Target Gas	Reading	Pass?
12/09	100 ppm	100.1 ppm	☑

☑ Battery Status 100 %
☑ 10 minutes test complete
☑ Spare battery status (Min 5.5 volts)
☑ Electrical Safety Tag attached (AS/NZS 3760)

Tag No: 000720

Valid to: 30-11-2018

☑ Performance check (pump, lamp, sensor)
☑ Data cleared
☑ Filters checked

Date: 12th Sept 2018

Signed: Mmp

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $30 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
☑	☐	MiniRAE 3000 PID / Operational Check / Battery Status 100%
☑	☐	Lamp 10.6 eV, Compound Set to: Isobutylene C/factor: 1
☑	☐	Protective yellow rubber boot
☑	☐	Inlet probe (attached to PID)
☑	☐	Spare water trap filter(s) Qty 03
☑	☐	Charger 240V to 12V1250mA
☑	☐	Cradle and Travel Charger
☑	☐	Instruction Manual behind foam on the lid of case "
☑	☐	Quick Guide Sheet behind foam on the lid of case "
☑	☐	Spare Alkaline Battery Compartment with batteries
☑	☐	Inline Moisture trap Filter Guide Laminated
☐	☐	Calibration regulator & tubing (optional)
☐	☐	Data cable and Software CD (optional)
☑	☐	Carry Case
☑	☐	Check to confirm electrical safety (tag must be valid)

Date: 12th Sept 2018

Signed: Mmp

TFS Reference	CM010116.	Return Date:	/ /
Customer Reference	4193.005	Return Time:	
Equipment ID	PID3000-46	Condition on return:	
Equipment Serial No.			

HydroTerra
Environmental Monitoring Specialists

MPI_230
Serial Number

EQUIPMENT QUALITY REPORT

MiniRae 3000 PID:

The following equipment has been issued as follows:

✓ Equipment is clean & filters replaced ✓ Pump, lamp & battery voltage check

Calibration Results				
Parameter	Standard	Result	Alarm Settings	Cal Gas Expiry Date
Fresh Air	0ppm	0.0 ppm		
Isobutylene	100ppm*	99.8 ppm	Lo Alarm 25ppm ☑ Hi Alarm 100ppm ☑ STEL 25ppm ☑ TWA 10ppm ☑	07-2020 799848
Correction				

Date: 29/10/2018

Calibrated by: Mickayla

*For quality control purposes HydroTerra can supply gas calibration data.

Please check that the following items are received and all items are returned. Please clean equipment before retuning. **A minimum $20 service/repair charge applies to any unclean or damaged items.**

Item	HT Id No.	Sent	Returned
MiniRae 3000 PID (plus yellow rubber boot)	MPI-230	✓	
Quick guide sheet	N/A	✓	
Manual	N/A	✓	
Inlet probe	N/A	✓	
Spare water trap filter(s) Qty_1___	N/A	✓	
Charger 240/110V to 12V 500mA	N/A	✓	
Spare alkaline battery compartment with batteries 6 V	N/A	✓	
Carry case	N/A	✓	
Test and tag requested		-	

✓ Equipment voltage ✓ Pre-delivery Calibration Test Complete

Date: 26/10/2018

Calibrated by: Mickayla

HT JOB NO: 14709 CLIENTS REF: P/O No: 4193.005

RETURN DATE: / / CONDITION ON RETURN:

HYDRO TERRA

Address: Unit 42/328 Reserve Road, Cheltenham, Victoria 3192

Phone: (03) 8683 0091 **Email:** info@hydroterra.com.au

Appendix S – Summary of Analytical Results and Guideline Comparisons

SUMMARY RESULTS - SOIL - Commercial (excluding waste soils & residential lot) and prior to Part 2 Hydrocarbon remediation and Metals-impacted soot remediation

4193.005 - Oatlands DSI	Analyte Group	TRH				BTEXN					PAH		Phenols		Heavy Metals																Organochlorine Pesticides								Herbicides			Asbestos
	Analyte	C6-C10 less BTEX (F1)	>C10-C16 less Naphthalene (F2)	>C16-C34 (F3)	>C34-C40 (F4)	Sum (>C6-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	Benz(a)pyrene	Carcinogenic PAHs (as BaP TEQ)	Total PAHs	Pentachlorophenol	Phenol	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Vanadium	Zinc	Mercury	DDT + DDE + DDD	Aldrin + Dieldrin	Chlordane (sum)	Endosulfan (sum)	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	2,4,5-T	2,4-D	MCPA	Asbestos (presence / identity)
	ASC NEPM HIL/HSL D (commercial / industrial)	260-NL (sand) 250-NL (silt) 310 NL (clay)	NL (all soil types)				3 (sand) 4-10 (silt) 4-20 (clay)	NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)		40	4,000	660	240,000	3,000		500	300,000	900	3,600 Cr(VI)	4,000	240,000	1,500	60,000	6,000	10,000		400,000	730 inorganic	3,600	45	530	2,000	100	50	80	2,500	5,000	9,000	5,000	
	ASC NEPM HIL/HSL C (recreational)	NL (all soil types)	NL (all soil types)				NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)		3	300	120	40,000	300		90	20,000	90	300 Cr(VI)	300	17,000	600	19,000	1,200	700		30,000	80 inorganic	400	10	70	340	20	10	10	400	800	1,300	800	
	ASC NEPM HIL/HSL A (residential with garden / accessible soil)	45-200 (sand) 40-190 (silt) 50-210 (clay)	110-NL (sand) 230-NL (silt) 280-NL (clay)				0.5 (sand) 0.6-2 (silt) 0.7-3 (clay)	160-540 (sand) 390-NL (silt) 480-NL (clay)	55-NL (sand) NL (silt) NL (clay)	40-170 (sand) 95-NL (silt) 110-NL (clay)	3-NL (sand) 4-NL (silt) 5-NL (clay)		3	300	100	3,000	100		60	4,500	20	100 Cr(VI)	100	6,000	300	3,800	400	200		7,400	40 inorganic	240	6	50	270	10	6	10	300	600	900	600	
	ASC NEPM EIL/ESL (commercial / industrial)	215 (coarse / fine)	170 (coarse / fine)	1,700 (coarse) 2,500 (fine)	3,300 (coarse) 6,600 (fine)		75 (coarse) 95 (fine)	135 (coarse / fine)	165 (coarse) 185 (fine)	180 (coarse) 95 (fine)	370	1.4 (coarse/ fine)					160					310 Cr(III)		140^	1,800^		55^		ACL:280^ EIL:380		640 (DDT)											
	ASC NEPM EIL/ESL urban residential / public open space)	180 (coarse / fine)	120 (coarse / fine)	300 (coarse) 1,300 (fine)	2,800 (coarse) 5,600 (fine)		50 (coarse) 65 (fine)	85 (coarse) 105 (fine)	70 (coarse) 125 (fine)	105 (coarse) 45 (fine)	170	0.7 (coarse/ fine)					100					190 Cr(III)		95^	1,100^		30^		ACL:180 EIL: 280		180 (DDT)											
Sample ID	**Date Sampled**	**Site**	**Depth (m)**	**Units**	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	g/kg
TP1-01	6/02/2018	Grid location - resampled	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	40	<1	<50	<1	6	8	38	7	322	14	<5	23	30	<0.1											
TP1-02	31/01/2018	Grid location	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	50	<1	<50	<1	8	9	42	17	359	17	<5	30	31	<0.1											
TP2-01	6/02/2018	Grid location - resampled	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	40	<1	<50	<1	9	11	45	<5	308	17	<5	38	31	<0.1											
TP2-02	31/01/2018	Grid location	0.40		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	40	<1	<50	<1	6	5	24	13	193	8	<5	19	18	<0.1											
TP3-01	6/02/2018	Grid location - resampled	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	20	<1	<50	<1	6	13	83	<5	370	20	<5	53	26	<0.1											
TP3-02	31/01/2018	Grid location	0.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	30	<1	<50	<1	3	<2	<5	7	22	2	<5	<5	6	<0.1											
TP4-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	20	<1	<50	<1	5	11	71	8	355	17	<5	43	55	<0.1											
TP4-02	31/01/2018	Grid location	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	100	<1	<50	<1	7	11	15	102	446	6	<5	34	77	<0.1											
TP5-01	6/02/2018	Grid location - resampled	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	20	<1	<50	<1	5	12	70	<5	330	17	<5	41	25	<0.1											
TP5-02	31/01/2018	Grid location	0.60		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	30	<1	<50	<1	12	4	17	14	94	5	<5	24	38	<0.1											
TP6-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	20	<1	<50	<1	5	12	72	<5	347	17	<5	37	57	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP6-02	6/02/2018	Grid location - resampled	0.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	110	<1	<50	<1	5	5	12	231	365	4	<5	16	55	0.2	-	-	-	-	-	-	-	-	-	-	-
TP7-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	20	<1	<50	<1	30	10	69	125	287	16	<5	35	531	0.3	-	-	-	-	-	-	-	-	-	-	-
TP7-02	31/01/2018	Grid location	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	60	<1	<50	<1	4	5	22	24	209	6	<5	14	37	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP8-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	20	<1	<50	<1	5	12	76	<5	337	17	<5	41	28	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP8-02	31/01/2018	Grid location	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	90	<1	<50	<1	4	4	17	31	415	6	<5	12	29	0.1	-	-	-	-	-	-	-	-	-	-	-
TP9-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	20	<1	<50	<1	10	18	74	<5	550	24	<5	53	27	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP9-02	6/02/2018	Grid location - resampled	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	70	<1	<50	<1	5	7	25	60	443	8	<5	19	65	0.1	-	-	-	-	-	-	-	-	-	-	-
TP10-01	31/01/2018	Grid location	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	60	<1	<50	<1	<2	15	33	7	316	<2	<5	20	54	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP10-02	31/01/2018	Grid location	0.50		<10	350	2110	300	2760	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	90	<1	<50	<1	6	5	16	55	262	5	<5	13	115	0.1	-	-	-	-	-	-	-	-	-	-	-
TP11-01	31/01/2018	Grid location	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	40	<1	<50	<1	<2	<2	<5	8	58	<2	<5	<5	26	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP11-02	31/01/2018	Grid location	0.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	30	<1	<50	<1	<2	<2	<5	8	38	<2	<5	<5	24	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP12-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	20	<1	<50	<1	10	11	63	<5	278	17	<5	39	30	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP12-02	31/01/2018	Grid location	0.40		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	50	<1	<50	<1	3	2	6	15	86	2	<5	6	29	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP12-03	31/01/2018	Grid location	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	160	4	<50	<1	12	14	6	14	1140	6	<5	64	8	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.02	<0.02	<0.02	-
TP13-01	31/01/2018	Grid location	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	70	<1	<50	<1	5	4	15	41	223	4	<5	13	49	0.4	-	-	-	-	-	-	-	-	-	-	-
TP13-02	31/01/2018	Grid location	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	60	<1	<50	<1	3	3	<5	6	105	3	<5	8	8	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP14-01	31/01/2018	Grid location	0.15		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	1320	<1	<50	<1	2	22	4	116	371	688	7	<5	11	675	0.4	-	-	-	-	-	-	-	-	-	-	-
TP15-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	31	240	<1	<50	<1	12	6	55	158	484	12	<5	19	244	0.5	-	-	-	-	-	-	-	-	-	-	-
TP15-02	31/01/2018	Grid location	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	60	<1	<50	<1	4	4	9	27	79	4	<5	9	38	0.1	-	-	-	-	-	-	-	-	-	-	-
TP16-01	31/01/2018	Grid location	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	80	<1	<50	<1	4	4	18	43	165	5	<5	13	104	0.1	-	-	-	-	-	-	-	-	-	-	-
TP16-02	31/01/2018	Grid location	0.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	30	<1	<50	<1	4	2	5	15	55	4	<5	9	14	<0.1	-	-	-	-	-	-	-	-	-	-	-
T1-01	20/02/2018	Target 1 - SE wall south of SW manhole	0.80		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-02	20/02/2018	Target 1 - SE wall along south wall	0.80		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-03	20/02/2018	Target 1 - SW of south wall	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-04	20/02/2018	Target 1 - West wall south end	0.80		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-05	20/02/2018	Target 1 - South wall	1.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-06	20/02/2018	Target 1 - West wall southern half	1.30		<10	110	290	<100	400	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-07	20/02/2018	Target 1 - West wall northern half	1.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-08	20/02/2018	Target 1 - West of sewer pit	1.20		<10	<50	200	<100	200	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-09	20/02/2018	Target 1 - North of Sewer pit	1.20		<10	150	1290	240	1680	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-10	20/02/2018	Target 1 - East of sewer pit	1.20		<10	<50	130	<100	130	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-11	20/02/2018	Target 1 - NE wall	1.40		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-12	20/02/2018	Target 1 - South base	1.50		<10	60	110	<100	170	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-13	20/02/2018	Target 1 - Centre base	1.40		<10	430	710	<100	1140	<0.2	<0.5	<0.5	<0.5	<1	<0.5	1.2	1.5	<2	<0.5	-	-	-	-	-	-	-	-	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-14	20/02/2018	Target 1 - North base	1.50		<10	270	400	<100	670	<0.2	<0.5	<0.5	<0.5	<1	<0.5	1.2	0.7	<2	<0.5	-	-	-	-	-	-	-	-	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T2-Wall 1	2/02/2018	Target 2 - pit wall	1.40		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	30	<1	<50	<1	7	7	8	6	222	5	<5	49	11	<0.1	-	-	-	-	-	-	-	-	-	-	-
T2-Wall 2	2/02/2018	Target 2 - pit wall	1.40		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	20	<1	<50	<1	7	4	<5	7	27	5	<5	18	10	<0.1	-	-	-	-	-	-	-	-	-	-	-
T2-Wall 3	2/02/2018	Target 2 - pit wall	1.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	30	<1	<50	<1	6	6	6	9	181	4	<5	49	9	<0.1	-	-	-	-	-	-	-	-	-	-	-
T2-Wall 4	2/02/2018	Target 2 - pit wall	1.00		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	50	<1	<50	<1	10	6	<5	13	35	7	<5	16	15	<0.1	-	-	-	-	-	-	-	-	-	-	-
T2-Base	2/02/2018	Target 2 - base	1.00		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	30	<1	<50	<1	5	6	7	8	167	4	<5	16	12	<0.1	-	-	-	-	-	-	-	-	-	-	-
T3-fuel line	2/02/2018	Target 3 - fuel line from tank to bowser	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T3-bowser base	2/02/2018	Target 3 - base of diesel bowser	0.30		<10	<50	170	<100	170	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T3-Wall 1	2/02/2018	Target 3 - pit wall	2.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T3-Wall 2	2/02/2018	Target 3 - pit wall	2.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T3-Wall 3	2/02/2018	Target 3 - pit wall	2.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T3-Wall 4	2/02/2018	Target 3 - pit wall	2.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T3-Base	2/02/2018	Target 3 - base	2.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T4-01	1/02/2018	Target 4 - wash bay	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	20	<1	<50	<1	4	2	<5	6	84	4	<5	8	17	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.02	<0.02	<0.02	-
T4-02	1/02/2018	Target 4 - wash bay	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	6	30	<1	<50	<1	9	5	6	6	139	19	<5	39	30	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.02	<0.02	<0.02	-
T4-03	1/02/2018	Target 4 - wash bay	0.30		<10	<50	300	<100	300	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	70	<1	<50	<1	4	<2	8	27	133	3	<5	9	47	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.02	<0.02	<0.02	-
T4-04	1/02/2018	Target 4 - wash bay	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	30	<1	<50	<1	4	3	<5	11	72	4	<5	8	35	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.02	<0.02	<0.02	-
T4-05	1/02/2018	Target 4 - wash bay	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	20	<1	<50	<1	3	2	<5	8	66	3	<5	11	18	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.02	<0.02	<0.02	-
T5-01	1/02/2018	Target 5 - vehicle service pit	1.50		<10	<50	840	160	1000	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	40	<1	<50	<1	8	6	21	19	145	10	<5	19	23	<0.1	-	-	-	-	-	-	-	-	-	-	-
T5-02	1/02/2018	Target 5 - vehicle service pit	1.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	10	<1	<50	<1	6	5	<5	6	126	5	<5	18	13	<0.1	-	-	-	-	-	-	-	-	-	-	-
T5-03	1/02/2018	Target 5 - vehicle service pit	1.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	20	<1	<50	<1	6	5	<5	<5	152	6	<5	14	11	<0.1	-	-	-	-	-	-	-	-	-	-	-
T5-04	1/02/2018	Target 5 - vehicle service pit	1.50		<10	<50	540	110	650	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	20	<1	<50	<1	5	8	<5	92	7	<5	10	16	<0.1	-	-	-	-	-	-	-	-	-	-	-
T5-05	1/02/2018	Target 5 - vehicle service pit	1.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	30	<1	<50	<1	8	8	37	5	170	14	<5	30	21	<0.1	-	-	-	-	-	-	-	-	-	-	-
T5-06	1/02/2018	Target 5 - end of vehicle service shed and store	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	20	<1	<50	<1	5	9	42	<5	229	13	<5	32	24	<0.1	-	-	-	-	-	-	-	-	-	-	-
T5-07	1/02/2018	Target 5 - end of vehicle service shed and store	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	20	<1	<50	<1	5	8	44	<5	208	12	<5	34	16	<0.1	-	-	-	-	-	-	-	-	-	-	-
T5-08	1/02/2018	Target 5 - end of vehicle service shed and store	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	20	<1	<50	<1	7	12	70	<5	354	18	<5	48	40	<0.1	-	-	-	-	-	-	-	-	-	-	-
T5-09	1/02/2018	Target 5 - end of vehicle service shed and store	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	20	<1	<50	<1	5	13	72	<5	367	19	<5	45	23	<0.1	-	-	-	-	-	-	-	-	-	-	-
T6-01	1/02/2018	Target 6 - oil store and old pesticide store	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T6-02	1/02/2018	Target 6 - oil store and old pesticide store	0.30		<10	<50	250	<100	250	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T11-01	1/02/2018	Target 11 - diesel spill route	0.40		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5

4193.005 - Oatlands DSI				Analyte Group	TRH				BTEXN					PAH		Phenols		Heavy Metals																		Organochlorine Pesticides								Herbicides			Asbestos
				Analyte	C6-C10 minus BTEX (F1)	>C10-C16 minus Naphthalene (F2)	>C16-C34 (F3)	>C34-C40 (F4)	Sum (>C10-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	Benzo(a)pyrene	Carcinogenic PAHs (as BaP TEQ)	Total PAHs	Pentachlorophenol	Phenol	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Vanadium	Zinc	Mercury	DDT + DDE + DDD	Aldrin + Dieldrin	Chlordane (sum)	Endosulfan (sum)	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	2,4,5-T	2,4-D	MCPA	Asbestos in matrix / presence
			ASC NEPM HIL/HSL D (commercial / industrial)		260-NL (sand) 250-NL (silt) 310 NL (clay)	NL (all soil types)				3 (sand) 4-10 (silt) 4-20 (clay)	NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)		40	4,000	660	240,000	3,000		500	300,000	900	3,600 Cr(VI)	4,000	240,000	1,500	60,000	6,000	10,000		400,000	730 inorganic	3,600	45	530	2,000	100	50	80	2,500	5,000	9,000	5,000	
			ASC NEPM HIL/HSL C (recreational)		NL (all soil types)	NL (all soil types)				NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)		3	300	120	40,000	300		90	20,000	90	300 Cr(VI)	300	17,000	600	19,000	1,200	700		30,000	80 inorganic	400	10	70	340	20	10	10	400	800	1,300	800	
			ASC NEPM HIL/HSL A (residential with garden / accessible soil)		45-200 (sand) 40-190 (silt) 50-290 (clay)	110-NL (sand) 230-NL (silt) 280-NL (clay)				0.5 (sand) 0.6-2 (silt) 0.7-3 (clay)	160-540 (sand) 390-NL (silt) 480-NL (clay)	55-NL (sand) NL (silt) NL (clay)	40-170 (sand) 95-NL (silt) 110-NL (clay)	3-NL (sand) 4-NL (silt) 5-NL (clay)		3	300	100	3,000	100		60	4,500	20	100 Cr(VI)	100	6,000	300	3,800	400	200		7,400	40 inorganic	240	6	50	270	10	6	10	300	600	900	600	
			ASC NEPM EIL/ESL (commercial / industrial)		215 (coarse / fine)	170 (coarse / fine)	1,700 (coarse) 2,500 (fine)	3,300 (coarse) 6,600 (fine)		75 (coarse) 95 (fine)	135 (coarse / fine)	165 (coarse) 185 (fine)	180 (coarse) 95 (fine)	370	1.4 (coarse/ fine)				160					310 Cr(III)		140^	1,800^		55^			ACL: 280^ EIL:380		640 (DDT)											
			ASC NEPM EIL/ESL urban residential / public open space)		180 (coarse / fine)	120 (coarse / fine)	300 (coarse) 1,300 (fine)	2,800 (coarse) 5,600 (fine)		50 (coarse) 65 (fine)	85 (coarse) 105 (fine)	70 (coarse) 125 (fine)	105 (coarse) 45 (fine)	170	0.7 (coarse/ fine)				100					190 Cr(III)		95^	1,100^		30^			ACL: 180 EIL: 280		180 (DDT)											
ACM1	31/01/2018	south of workshop	0.00	Fragments not soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Yes - not friable
ACM2	31/01/2018	south of workshop	0.00	Fragments not soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Yes - not friable
ACM3	31/01/2018	north east of workshop	0.00	Fragments not soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No
SV1	28/05/2018	Stockpile A Validation - southern end o footprint	-		<10	<50	150	<100	150	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SV2	28/05/2018	Stockpile A Validation - northern end o footprint	-		<10	<50	240	<100	240	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SV3	28/05/2018	Stockpile B Validation - southern end o footprint	-		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SV4	28/05/2018	Stockpile B Validation - southern end o footprint	-		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SV5	28/05/2018	Stockpile B Validation - middle of footprint	-		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SV6	28/05/2018	Stockpile B Validation - northern end c footprint	-		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T14-03-V01	28/05/2018	Target 14 Validation - base of T14-03	0.60		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	40	<1	<50	<1	6	3	<5	8	54	4	<5	24	9	<0.1												
TP10V-01	30/05/2018	TP10 Validation - base	0.80		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-02	30/05/2018	TP10 Validation - base	0.80		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-03	30/05/2018	TP10 Validation - base	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-04	30/05/2018	TP10 Validation - base	0.60		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-05	30/05/2018	TP10 Validation - wall	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-06	30/05/2018	TP10 Validation - wall	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-07	30/05/2018	TP10 Validation - wall	0.60		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-08	30/05/2018	TP10 Validation - wall	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-09	30/05/2018	TP10 Validation - base	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-10	30/05/2018	TP10 Validation - base	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-11	30/05/2018	TP10 Validation - base	0.70		<10	<50	120	<100	120	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-12	30/05/2018	TP10 Validation - base	0.80		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-13	30/05/2018	TP10 Validation - base	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-14	30/05/2018	TP10 Validation - base	0.80		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-15	30/05/2018	TP10 Validation - base	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-16	30/05/2018	TP10 Validation - wall	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-17	30/05/2018	TP10 Validation - wall	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-18	30/05/2018	TP10 Validation - wall	0.70		<10	110	600	<100	710	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-19	31/05/2018	TP10 Validation - wall	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-20	31/05/2018	TP10 Validation - wall	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-21	31/05/2018	TP10 Validation - wall	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fill 1	31/05/2018	ACM Delineation Trenches - west end at "Jenny's"	0-0.5		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	120	<1	<50	<1	8	9	27	141	276	11	<5	25	184	1.1												No
Fill 2	31/05/2018	ACM Delineation Trenches - small pil adjacent to building	0-0.5		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	310	<1	<50	<1	11	7	26	203	250	7	<5	26	630	0.8												No
Fill 3	31/05/2018	ACM Delineation Trenches - stockpile adjacent to trench J	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	100	<1	<50	<1	4	4	10	38	243	6	<5	11	70	0.2												No
Fill 4	31/05/2018	ACM Delineation Trenches - stockpile adjacent to trench I	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	120	<1	<50	<1	8	8	40	127	409	10	<5	25	290	2.8												No
Fill 5	31/05/2018	ACM Delineation Trenches - stockpile from trench C	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	60	<1	<50	<1	6	8	37	53	303	8	<5	32	83	0.2												No
Fill 6	31/05/2018	ACM Delineation Trenches - stockpile from trench C	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	130	<1	<50	<1	8	7	36	234	359	8	<5	31	275	0.4												No
Fill 7	31/05/2018	ACM Delineation Trenches - stockpile from trench E	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	80	<1	<50	<1	7	6	28	76	225	8	<5	23	188	<0.1												No
Fill 8	31/05/2018	ACM Delineation Trenches - stockpile from trench E	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	60	<1	<50	<1	7	5	16	68	157	6	<5	28	82	<0.1												No
Trench 1a	21/06/2018	Trench 1 - eastern centre of Property	0.60		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 1b	21/06/2018	Trench 1 - eastern centre of Property	0.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 2a	21/06/2018	Trench 2 - centre of Property	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 3a	21/06/2018	Trench 3 - western centre of Property	0.80		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 3b	21/06/2018	Trench 3 - western centre of Property	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 3c	21/06/2018	Trench 3 - western centre of Property	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 4a	21/06/2018	Trench 4 - western centre of Property	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 4b	21/06/2018	Trench 4 - western centre of Property	0.60		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW1 0.5-1m	5/07/2018	Groundwater well	0.5-1.0		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW1 2.5-3m	5/07/2018	Groundwater well	2.5-3.0		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW1 5-5.5m	5/07/2018	Groundwater well	5-5.5		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW1 7.5-8m	5/07/2018	Groundwater well	7.5-8.0		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW1 10.5-11m	5/07/2018	Groundwater well	10.5-11.0		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TR5-01	12/09/2018	Trench 5 - parallel to southern fence line	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	30	<1	<50	<1	6	7	34	11	284	10	<5	25	33	<0.1												
TR5-02	12/09/2018	Trench 5 - parallel to southern fence line	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	50	<1	<50	<1	8	12	66	36	372	14	<5	40	76	0.3												
TR5-03	12/09/2018	Trench 5 - parallel to southern fence line	0.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	130	<1	<50	<1	7	6	37	159	250	9	<5	22	189	0.4												
TR5-04	12/09/2018	Trench 5 - parallel to southern fence line	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	30	1	<50	<1	13	13	6	12	61	9	<5	22	31	<0.1												
TR5-05	12/09/2018	Trench 5 - parallel to southern fence line	0.90		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	60	<1	<50	<1	12	11	<5	20	45	9	<5	28	25	<0.1												
TR6-01	12/09/2018	Trench 6 - between AST remedial excavation and eastern fence	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	160	<1	<50	<1	6	5	33	245	332	5	<5	16	155	0.6												
TR6-02	12/09/2018	Trench 6 - between AST remedial excavation and eastern fence	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	20	<1	<50	<1	4	3	<5	8	48	4	<5	10	16	<0.1												
TR6-03	12/09/2018	Trench 6 - between AST remedial excavation and eastern fence	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	160	<1	<50	<1	10	5	28	139	297	6	<5	24	161	0.4												
TR6-04	12/09/2018	Trench 6 - between AST remedial excavation and eastern fence	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	20	<1	<50	<1	5	5	<5	<5	57	5	<5	12	12	<0.1												
TR6-05	12/09/2018	Trench 6 - between AST remedial excavation and eastern fence	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	20	<1	<50	<1	9	14	79	<5	416	23	<5	47	26	<0.1												
TR6-06	12/09/2018	Trench 6 - remedial excavation validation	0.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	5	110	<1	<50	<1	8	9	40	114	262	14	<5	27	100	0.2												
TR6-07	12/09/2018	Trench 6 - remedial excavation validation	0.60		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	40	<1	<50	<1	7	11	56	21	316	16	<5	34	55	<0.1												
TR6-08	12/09/2018	Trench 6 - remedial excavation validation	0.60		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	50	<1	<50	<1	6	6	7	107	110	5	<5	18	87	<0.1												
TR6-09	12/09/2018	Trench 6 - remedial excavation validation	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	70	<1	<50	<1	9	7	18	13	82	8	<5	25	105	<0.1												
TR6-10	12/09/2018	Trench 6 - remedial excavation validation	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	20	<1	<50	<1	4	4	<5	5	51	4	<5	11	10	<0.1												
TR6-11	12/09/2018	Trench 6 - remedial excavation validation	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	40	<1	<50	<1	6	5	8	19	93	5	<5	12	29	<0.1												
SWP01	12/09/2018	Sewer Pipeline Trench - perpendicular t Church Street Entranc	1.35		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	40	<1	<50	<1	6	8	37	6	315	10	<5	23	18	<0.1												
SWP02	12/09/2018	Sewer Pipeline Trench - perpendicular t Church Street Entranc	1.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	20	<1	<50	<1	4	4	11	25	104	7	<5	13	14	<0.1												
SWP03	12/09/2018	Sewer Pipeline Trench - perpendicular t Church Street Entranc	1.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	30	<1	<50	<1	2	<2	<5	8	69	2	<5	5	20	<0.1												
SWP04	12/09/2018	Sewer Pipeline Trench - perpendicular t Church Street Entranc	1.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	80	<1	<50	<1	12	3	5	28	23	4	<5	23	11	<0.1												
SWP05	12/09/2018	Sewer Pipeline Trench - perpendicular t Church Street Entranc	1.30		<10	<50	280	<100	280	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	40	<1	<50	<1	5	5	13	13	132	6	<5	16	23	<0.1												
TP17-01	1/11/2018	Additional grid location - old workshop	0.10		<10	<50	210	<100	210	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	13	2010	<1	<50	7	16	10	322	4150	1520	63	<5	21	5390	14.6												

4193.005 - Oatlands DSI			Analyte Group	TRH					BTEXN					PAH		Phenols		Heavy Metals																								Organochlorine Pesticides								Herbicides			Asbestos
			Analyte	C6-C10 minus BTEX (F1)	>C10-C16 minus Naphthalene (F2)	>C16-C34 (F3)	>C34-C40 (F4)	Sum (>C10-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	Benzo(a)pyrene	Carcinogenic PAHs (as BaP TEQ)	Total PAHs	Pentachlorophenol	Phenol	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Vanadium	Zinc	Mercury	DDT + DDE + DDD	Aldrin + Dieldrin	Chlordane (sum)	Endosulfan (sum)	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	2,4,5-T	2,4-D	MCPA	Asbestos (presence/absence)	Asbestos (grams)
		ASC NEPM HIL/HSL D (commercial / industrial)		260-NL (sand) 250-NL (silt) 310 NL (clay)	NL (all soil types)				3 (sand) 4-10 (silt) 4-20 (clay)	NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)		40	4,000	660	240,000	3,000		500	300,000	900	3,600 Cr(VI)	4,000	240,000	1,500	60,000	6,000	10,000		400,000	730 inorganic	3,600	45	530	2,000	100	50	80	2,500	5,000	9,000	5,000		
		ASC NEPM HIL/HSL C (recreational)		NL (all soil types)	NL (all soil types)				NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)		3	300	120	40,000	300		90	20,000	90	300 Cr(VI)	300	17,000	600	19,000	1,200	700		30,000	80 inorganic	400	10	70	340	20	10	10	400	800	1,300	800		
		ASC NEPM HIL/HSL A (residential with garden / accessible soil)		45-200 (sand) 40-190 (silt) 50-290 (clay)	110-NL (sand) 230-NL (silt) 280-NL (clay)				0.5 (sand) 0.6-2 (silt) 0.7-3 (clay)	160-540 (sand) 390-NL (silt) 480-NL (clay)	55-NL (sand) NL (silt) NL (clay)	40-170 (sand) 95-NL (silt) 110-NL (clay)	3-NL (sand) 4-NL (silt) 5-NL (clay)		3	300	100	3,000	100		60	4,500	20	100 Cr(VI)	100	6,000	300	3,800	400	200		7,400	40 inorganic	240	6	50	270	10	6	10	300	600	900	600		
		ASC NEPM HIL/HSL (commercial / industrial)		215 (coarse / fine)	170 (coarse / fine)	1,700 (coarse) 2,500 (fine)	3,300 (coarse) 6,600 (fine)		75 (coarse) 95 (fine)	135 (coarse / fine)	165 (coarse) 185 (fine)	180 (coarse) 95 (fine)	370	1.4 (coarse/ fine)				160					310 Cr(III)		140^	1,800^		55^			ACL:280^ EIL:380		640 (DDT)												
		ASC NEPM EIL/ESL urban residential / public open space)		180 (coarse / fine)	120 (coarse / fine)	300 (coarse) 1,300 (fine)	2,800 (coarse) 5,600 (fine)		50 (coarse) 65 (fine)	85 (coarse) 105 (fine)	70 (coarse) 125 (fine)	105 (coarse) 45 (fine)	170	0.7 (coarse/ fine)				100					190 Cr(III)		95^	1,100^		30^			ACL:180 EIL: 280		180 (DDT)												
TP17-02	1/11/2018	Additional grid location - old workshop	0.50	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	50	<1	<50	<1	7	4	9	30	29	5	<5	12	55	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP18-01	1/11/2018	Additional grid location - residential lots	0.10	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	50	<1	<50	<1	13	17	70	<5	468	23	<5	57	30	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP18-02	1/11/2018	Additional grid location - residential lots	0.40	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	50	<1	<50	<1	6	6	17	8	182	7	<5	19	22	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP19-01	1/11/2018	Additional grid location - residential lots	0.10	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	20	<1	<50	<1	8	15	76	<5	502	21	<5	51	32	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
TP19-02	1/11/2018	Additional grid location - residential lots	0.30	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	60	<1	<50	<1	8	5	21	24	282	9	<5	22	30	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
L2-V1	1/11/2018	Stockpile validation - large L2 stockpile north of old workshop	-	<10	<50	300	<100	300	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	60	<1	<50	<1	4	12	45	100	449	5	<5	46	131	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-
L2-V2	1/11/2018	Stockpile validation - large L2 stockpile north of old workshop	-	<10	<50	540	140	680	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	50	<1	<50	<1	27	10	37	54	202	6	<5	48	115	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-
L2-V3	1/11/2018	Stockpile validation - large L2 stockpile north of old workshop	-	<10	<50	440	120	560	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	50	<1	<50	<1	4	9	36	43	362	6	<5	36	79	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-
L2-V4	1/11/2018	Stockpile validation - large L2 stockpile north of old workshop	-	<10	<50	270	<100	270	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	80	<1	<50	<1	4	12	54	223	422	6	<5	39	171	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-
L2-V5	1/11/2018	Stockpile validation - small L2 stockpile from Trench c	-	<10	<50	200	<100	200	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	50	<1	<50	<1	6	9	33	22	251	9	<5	39	77	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
L1-V1	1/11/2018	Stockpile validation - large L1 stockpile NE of large hydrocarbon excavation	-	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L1-V2	1/11/2018	Stockpile validation - large L1 stockpile NE of large hydrocarbon excavation	-	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L1-V3	1/11/2018	Stockpile validation - large L1 stockpile NE of large hydrocarbon excavation	-	<10	<50	170	<100	170	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L3-V1	1/11/2018	Stockpile validation - L3 stockpile bioremediated to L1	-	<10	<50	960	180	1140	<0.2	<0.5	<0.5	<0.5	<1																																			
MR01	18/12/2018	Metals remediation excavation validation	0.20	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	30	<1	<50	<1	<2	<2	<5	<5	40	<2	<5	<5	<5	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
MR02	18/12/2018	Metals remediation excavation validation	0.20	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	30	<1	<50	<1	<2	<2	<5	<5	33	<2	<5	<5	<5	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
MR03	18/12/2018	Metals remediation excavation validation	0.30	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	50	<1	<50	<1	3	<2	<5	34	82	2	<5	7	20	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-
MR04	18/12/2018	Metals remediation excavation validation	0.20	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	60	<1	<50	<1	2	<2	20	20	48	5	<5	<5	14	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-
MR05	18/12/2018	Metals remediation excavation validation	0.50	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	80	<1	<50	<1	5	6	22	129	273	8	<5	18	110	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-
MR06	18/12/2018	Metals remediation excavation validation	0.30	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	30	<1	<50	<1	<2	<2	<5	<5	29	<2	<5	<5	<5	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
MR07	18/12/2018	Metals remediation excavation validation	0.50	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	70	<1	<50	<1	4	<2	16	134	71	2	<5	7	49	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
MR08	18/12/2018	Metals remediation excavation validation (in trench	1.10	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	20	<1	<50	<1	5	2	<5	<5	20	3	<5	8	5	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
MR09	18/12/2018	Metals remediation excavation validation	0.80	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	40	<1	<50	<1	8	8	<5	8	109	9	<5	14	41	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
MR10	18/12/2018	Metals remediation excavation validation (in trench	0.20	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	70	<1	<50	<1	4	4	8	81	204	5	<5	8	66	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-
MR11	18/12/2018	Metals remediation excavation validation	0.30	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	100	<1	<50	<1	4	4	10	24	153	4	<5	12	19	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-
MR12	18/12/2018	Metals remediation excavation validation (in trench	0.40	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	40	<1	<50	<1	2	2	<5	16	254	2	<5	6	28	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
MR13	18/12/2018	Metals remediation excavation validation	0.40	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	90	<1	<50	<1	4	4	9	69	306	4	<5	10	37	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-
MR14	18/12/2018	Metals remediation excavation validation (in trench	0.50	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	60	<1	<50	<1	5	6	28	108	240	6	<5	17	82	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-
OPbVal01	14/05/2019	Footprint validation of metals contaminated waste soil stockpiles	0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	70	<1	<50	<5	20	13	61	38	994	29	<5	30	809	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
OPbVal02	14/05/2019	Footprint validation of metals contaminated waste soil stockpiles	0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	50	<1	<50	<1	10	11	55	28	295	15	<5	43	105	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
OPbVal03	14/05/2019	Footprint validation of metals contaminated waste soil stockpiles	0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	60	<1	<50	<1	9	13	36	22	376	16	<5	25	104	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
OPbVal04	14/05/2019	Footprint validation of metals contaminated waste soil stockpiles	0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	80	<1	<50	<1	7	17	40	74	428	10	<5	30	340	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-
OPbVal05	14/05/2019	Footprint validation of metals contaminated waste soil stockpiles	0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	70	<1	<50	<1	11	12	52	272	324	16	<5	34	131	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-

Legend:

222	value equals or exceeds at least one of the ecological criteria
222	value equals or exceeds at least one of the human health criteria plus at least one of the ecological criteria
	human health criteria
	ecological criteria
	indicates silica gel clean-up results
222	bold value indicates result is > LOR
222	guideline value is the most conservative ACL - based on the lowest clay content (% clay)
222	greyed out samples represent soils that were removed during subsequent round of remedial excevation
*	guideline value is the generic ACL
^	guideline value is the most conservative ACL - calculated from three classification samples:
	Copper ACL - calculated to be 95 mg/kg - 190 mg/kg (urban residential and public open space) and 140 mg/kg - 280 mg/kg (commercial / industrial)
	Nickel ACL - calculated to be 30 mg/kg - 170 mg/kg (urban residential and public open space) and 55 mg/kg - 290 mg/kg (commercial / industrial)
	Zinc ACL - calculated to be 180 mg/kg - 400 mg/kg (urban residential and public open space) and 280 mg/kg - 620 mg/kg (commercial / industrial)
<20	less than value indicates result is less than the LOR
ACL	Added Contaminant Limit
LOR	Laboratory Limit of Reporting
NL	Not Limiting
HIL / HSL	Health Investigation Level / Health Screening Level
EIL / ESL	Ecological Investigation Level / Ecological Screening Level
	Grid locations with "resampled" were resampled due to ice-melt preventing analysis of the original samples

Reference: ASC NEPM: National Environment Protection (Assessment of Site Contamination) Measure 1999, amended 2013 (ASC NEPM, 2013)

SUMMARY RESULTS - SOIL in Commercial Setting (excluding waste soils)

4193.005 - Outlands DSI

				TRH				BTEXN					PAH		Phenols		Heavy Metals																Organochlorine Pesticides									Herbicides			Asbestos
			Analyte Group																																									
			Analyte	C6-C10 minus BTEX (F1)	>C10-C16 minus Naphthalene (F2)	>C16-C34 (F3)	>C34-C40 (F4)	Sum (>C10-C40)	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naphthalene	Benzo(a)pyrene	Carcinogenic PAHs (as BaP TEQ)	Total PAHs	Pentachlorophenol	Phenol	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Vanadium	Zinc	Mercury	DDT + DDE + DDD	Aldrin + Dieldrin	Chlordane (sum)	Endosulfan (sum)	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	2,4,5-T	2,4-D	MCPA	Asbestos (presence / absence)
			ASC NEPM HIL/HSL D (commercial / industrial)	260-NL (sand) 250-NL (silt) 310-NL (clay)	NL (all soil types)				3 (sand) 4-10 (silt) 4-20 (clay)	NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)	40	4,000	660	240,000	3,000		500	300,000	900	3,600 Cr(VI)	4,000	240,000	1,500	60,000	6,000	10,000		400,000	730 inorganic	3,600	45	530	2,000	100	50	80	2,500	5,000	9,000	5,000	
			ASC NEPM HIL/HSL C (recreational)	NL (all soil types)	NL (all soil types)				NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)	3	300	120	40,000	300		90	20,000	90	300 Cr(VI)	300	17,000	600	19,000	1,200	700		30,000	80 (inorganic)	400	10	70	340	20	10	10	400	800	1,300	800	
			ASC NEPM HIL/HSL A (residential with garden / accessible soil)	45-200 (sand) 40-190 (silt) 50-290 (clay)	110-NL (sand) 230-NL (silt) 280-NL (clay)				0.5 (sand) 0.6-2 (silt) 0.7-3 (clay)	160-540 (sand) 390-NL (silt) 480-NL (clay)	55-NL (sand) NL (silt) NL (clay)	40-170 (sand) 95-NL (silt) 110-NL (clay)	3-NL (sand) 4-NL (silt) 5-NL (clay)	3	300	100	3,000	100		60	4,500	20	100 Cr(VI)	100	6,000	300	3,800	400	200		7,400	40 (inorganic)	240	6	50	270	10	6	10	300	600	900	600	
			ASC NEPM EIL/ESL (commercial / industrial)	215 (coarse / fine)	170 (coarse / fine)	1,700 (coarse) 2,500 (fine)	3,300 (coarse) 6,600 (fine)		75 (coarse) 95 (fine)	135 (coarse / fine)	165 (coarse) 185 (fine)	180 (coarse) 95 (fine)	370	1.4 (coarse / fine)				160					310 Cr(III)		140^	1,800*		55^		ACL:280^ EIL:380		640 (DDT)											
			ASC NEPM EIL/ESL urban residential / public open space)	180 (coarse / fine)	120 (coarse / fine)	300 (coarse) 1,300 (fine)	2,800 (coarse) 5,600 (fine)		50 (coarse) 65 (fine)	85 (coarse) 105 (fine)	70 (coarse) 125 (fine)	105 (coarse) 45 (fine)	170	0.7 (coarse / fine)				100					190 Cr(III)		95^	1,100*		30^		ACL:180 EIL: 280		180 (DDT)											
Sample ID	**Date Sampled**	**Site**	**Depth (m)**	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	g/kg
TP1-01	6/02/2018	Grid location -resampled	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	40	<1	<50	<1	6	8	38	7	322	14	<5	23	30	<0.1												
TP1-02	31/01/2018	Grid location	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	50	<1	<50	<1	8	9	42	17	359	17	<5	30	31	<0.1												
TP2-01	6/02/2018	Grid location -resampled	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	40	<1	<50	<1	9	11	45	<5	308	17	<5	38	31	<0.1												
TP2-02	31/01/2018	Grid location	0.40		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	40	<1	<50	<1	6	5	24	13	193	8	<5	19	18	<0.1												
TP3-01	6/02/2018	Grid location -resampled	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	20	<1	<50	<1	6	13	83	<5	370	20	<5	53	26	<0.1												
TP3-02	31/01/2018	Grid location	0.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	30	<1	<50	<1	3	<2	<5	7	22	2	<5	<5	6	<0.1												
TP4-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	20	<1	<50	<1	5	11	71	8	355	17	<5	43	55	<0.1												
TP4-02	31/01/2018	Grid location	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	100	<1	<50	<1	7	11	15	102	446	6	<5	34	77	<0.1												
TP5-01	6/02/2018	Grid location -resampled	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	20	<1	<50	<1	5	12	70	<5	330	17	<5	41	25	<0.1												
TP5-02	31/01/2018	Grid location	0.60		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	1.2	<0.5			<5	30	<1	<50	<1	12	4	17	14	94	5	<5	24	38	<0.1												
TP6-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	20	<1	<50	<1	5	12	72	<5	347	17	<5	37	57	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
TP6-02	6/02/2018	Grid location -resampled	0.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	110	<1	<50	<1	5	5	12	231	365	4	<5	16	55	0.2	-	-	-	-	-	-	-	-	-	-	-	-
TP7-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	20	<1	<50	<1	30	10	69	125	287	16	<5	35	531	0.3	-	-	-	-	-	-	-	-	-	-	-	-
TP7-02	31/01/2018	Grid location	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	60	<1	<50	<1	4	5	22	24	209	6	<5	14	37	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
TP8-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	20	<1	<50	<1	5	12	76	<5	337	17	<5	41	28	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
TP8-02	31/01/2018	Grid location	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	90	<1	<50	<1	4	4	17	31	415	6	<5	12	29	0.1	-	-	-	-	-	-	-	-	-	-	-	-
TP9-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	20	<1	<50	<1	10	18	74	<5	550	24	<5	53	27	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
TP9-02	6/02/2018	Grid location -resampled	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	70	<1	<50	<1	5	7	25	69	443	8	<5	19	65	0.1	-	-	-	-	-	-	-	-	-	-	-	-
TP11-01	31/01/2018	Grid location	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	40	<1	<50	<1	<2	<2	<5	8	58	<2	<5	<5	26	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
TP11-02	31/01/2018	Grid location	0.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	30	<1	<50	<1	<2	<2	<5	8	38	<2	<5	<5	24	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
TP12-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	20	<1	<50	<1	10	11	63	<5	278	17	<5	39	30	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
TP12-02	31/01/2018	Grid location	0.40		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	50	<1	<50	<1	3	2	6	15	86	2	<5	6	29	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
TP12-03	31/01/2018	Grid location	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	160	4	<50	<1	12	14	6	14	1140	6	<5	64	8	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.02	<0.02	<0.02	-
TP13-01	31/01/2018	Grid location	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	70	<1	<50	<1	5	4	15	41	223	4	<5	13	49	0.4	-	-	-	-	-	-	-	-	-	-	-	-
TP13-02	31/01/2018	Grid location	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	40	<1	<50	<1	3	3	<5	6	105	3	<5	8	8	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
TP14-01	31/01/2018	Grid location	0.15		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	1320	<1	<50	2	22	4	116	371	688	7	<5	11	675	0.4	-	-	-	-	-	-	-	-	-	-	-	-
TP15-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	31	240	<1	<50	<1	12	6	55	158	484	12	<5	19	244	0.5	-	-	-	-	-	-	-	-	-	-	-	-
TP15-02	31/01/2018	Grid location	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	60	<1	<50	<1	4	<1	9	27	79	4	<5	9	38	0.1	-	-	-	-	-	-	-	-	-	-	-	-
TP16-01	31/01/2018	Grid location	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	80	<1	<50	<1	4	4	18	43	165	5	<5	13	104	0.1	-	-	-	-	-	-	-	-	-	-	-	-
TP16-02	31/01/2018	Grid location	0.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	30	<1	<50	<1	4	2	5	15	55	4	<5	9	14	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
T1-01	20/02/2018	Target 1 - SE wall south of SW manhole	0.80		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-02	20/02/2018	Target 1 - SE wall along south wall	0.80		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-03	20/02/2018	Target 1 - SW of south wall	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-04	20/02/2018	Target 1 - West wall south end	0.80		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-05	20/02/2018	Target 1 - South wall	1.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-06	20/02/2018	Target 1 - West wall southern half	1.30		<10	110	290	<100	400	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-07	20/02/2018	Target 1 - West wall northern half	1.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-10	20/02/2018	Target 1 - East of sewer pit	1.20		<10	<50	130	<100	130	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-11	20/02/2018	Target 1 - NE wall	1.40		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-12	20/02/2018	Target 1 - South base	1.50		<10	60	110	<100	170	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-13	20/02/2018	Target 1 - Centre base	1.40		<10	430	710	<100	1140	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	1.2	1.5	<2	<0.5	-	-	-	-	-	-	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-14	20/02/2018	Target 1 - North base	1.50		<10	270	400	<100	670	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	1.2	0.7	<2	<0.5	-	-	-	-	-	-	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T2-Wall 1	2/02/2018	Target 2 - pit wall	1.40		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	30	<1	<50	<1	7	7	8	6	222	5	<5	49	11	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
T2-Wall 2	2/02/2018	Target 2 - pit wall	1.40		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	20	<1	<50	<1	7	4	<5	7	27	5	<5	18	10	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
T2-Wall 3	2/02/2018	Target 2 - pit wall	1.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	30	<1	<50	<1	6	6	6	9	181	4	<5	49	9	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
T2-Wall 4	2/02/2018	Target 2 - pit wall	1.00		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	50	<1	<50	<1	10	6	<5	13	35	7	<5	16	15	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
T2-Base	2/02/2018	Target 2 - base	1.00		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	30	<1	<50	<1	5	6	7	8	167	4	<5	36	12	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
T3-fuel line	2/02/2018	Target 3 - fuel line from tank to bowser	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T3-bowser base	2/02/2018	Target 3 - base of diesel bowser	0.30		<10	<50	170	<100	170	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T3-Wall 1	2/02/2018	Target 3 - pit wall	2.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T3-Wall 2	2/02/2018	Target 3 - pit wall	2.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T3-Wall 3	2/02/2018	Target 3 - pit wall	2.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T3-Wall 4	2/02/2018	Target 3 - pit wall	2.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T3-Base	2/02/2018	Target 3 - base	2.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T4-01	1/02/2018	Target 4 - wash bay	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	20	<1	<50	<1	4	2	<5	6	84	4	<5	8	17	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.02	<0.02	<0.02	-
T4-02	1/02/2018	Target 4 - wash bay	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	30	<1	<50	<1	9	5	6	6	139	19	<5	39	30	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.02	<0.02	<0.02	-
T4-03	1/02/2018	Target 4 - wash bay	0.30		<10	<50	300	<100	300	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	70	<1	<50	<1	4	<2	8	27	133	3	<5	9	67	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.02	<0.02	<0.02	-
T4-04	1/02/2018	Target 4 - wash bay	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	30	<1	<50	<1	4	3	<5	11	72	4	<5	8	35	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.02	<0.02	<0.02	-
T4-05	1/02/2018	Target 4 - wash bay	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	20	<1	<50	<1	3	2	<5	8	66	3	<5	11	18	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.02	<0.02	<0.02	-
T5-01	1/02/2018	Target 5 - vehicle service pit	1.50		<10	<50	840	160	1000	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	40	<1	<50	<1	8	6	21	19	145	10	<5	19	23	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
T5-02	1/02/2018	Target 5 - vehicle service pit	1.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	10	<1	<50	<1	6	5	<5	6	126	5	<5	18	13	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
T5-03	1/02/2018	Target 5 - vehicle service pit	1.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	20	<1	<50	<1	6	5	<5	<5	152	6	<5	14	11	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
T5-04	1/02/2018	Target 5 - vehicle service pit	1.50		<10	<50	540	110	650	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	20	<1	<50	<1	5	5	8	<5	92	7	<5	10	16	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
T5-05	1/02/2018	Target 5 - vehicle service pit	1.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	30	<1	<50	<1	8	8	37	5	170	14	<5	30	21	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
T5-06	1/02/2018	Target 5 - end of vehicle service shed and store	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	20	<1	<50	<1	5	9	42	<5	229	13	<5	32	24	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
T5-07	1/02/2018	Target 5 - end of vehicle service shed and store	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	20	<1	<50	<1	5	8	44	<5	208	12	<5	34	16	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
T5-08	1/02/2018	Target 5 - end of vehicle service shed and store	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	20	<1	<50	<1	7	12	70	<5	354	18	<5	48	40	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
T5-09	1/02/2018	Target 5 - end of vehicle service shed and store	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	20	<1	<50	<1	5	13	72	<5	367	19	<5	45	23	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
T6-01	1/02/2018	Target 6 - oil store and old pesticide store	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	-
T6-02	1/02/2018	Target 6 - oil store and old pesticide store	0.30		<10	<50	250	<100	250	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	-
T11-01	1/02/2018	Target 11 - diesel spill route	0.40		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T11-02

4193.005 - Oatlands DSI			Analyte Group	TRH					BTEXN					PAH		Phenols		Heavy Metals																		Organochlorine Pesticides								Herbicides			Asbestos
			Analyte	C6-C10 minus BTEX (F1)	>C10-C16 minus Naphthalene (F2)	>C16-C34 (F3)	>C34-C40 (F4)	Sum (>C10-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	Benzo(a)pyrene	Carcinogenic PAHs (as BaP TEQ)	Total PAHs	Pentachlorophenol	Phenol	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Vanadium	Zinc	Mercury	DDT + DDE + DDD	Aldrin + Dieldrin	Chlordane (sum)	Endosulfan (sum)	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	2,4,5-T	2,4-D	MCPA	Asbestos (presence / absence)
			ASC NEPM HIL/HSL D (commercial / industrial)	260-NL (sand) 250-NL (silt) 310-NL (clay)	NL (all soil types)				3 (sand) 4-10 (silt) 4-20 (clay)	NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)	40	4,000	660	240,000	3,000		500	300,000	900	3,600 Cr(VI)	4,000	240,000	1,500	60,000	6,000	10,000		400,000	730 inorganic	3,600	45	530	2,000	100	50	80	2,500	5,000	9,000	5,000	
			ASC NEPM HIL/HSL C (recreational)	NL (all soil types)	NL (all soil types)				NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)	3	300	120	40,000	300		90	20,000	90	300 Cr(VI)	300	17,000	600	19,000	1,200	700		30,000	80 (inorganic)	400	10	70	340	20	10	10	400	800	1,300	800	
			ASC NEPM HIL/HSL A (residential with garden / accessible soil)	45-200 (sand) 40-190 (silt) 50-290 (clay)	NL (all soil types)				0.5 (sand) 0.6-2 (silt) 0.7-3 (clay)	160-540 (sand) 390-NL (silt) 480-NL (clay)	55-NL (sand) NL (silt) NL (clay)	40-170 (sand) 95-NL (silt) 110-NL (clay)	NL (all soil types) 3-NL (sand) 4-NL (silt) 5-NL (clay)	3	300	100	3,000	100		60	4,500	20	100 Cr(VI)	100	6,000	300	3,800	400	200		7,400	40 (inorganic)	240	6	50	270	10	6	10	300	600	900	600	
			ASC NEPM EIL/ESL (commercial / industrial)	215 (coarse / fine)	170 (coarse / fine)	1,700 (coarse) 2,500 (fine)	3,300 (coarse) 6,600 (fine)		75 (coarse) 95 (fine)	135 (coarse / fine)	165 (coarse) 185 (fine)	180 (coarse) 95 (fine)	370	1.4 (coarse / fine)				160					310 Cr(III)		140^	1,800*		55^		ACL:280^ EIL:380		640 (DDT)											
			ASC NEPM EIL/ESL urban residential / public open space)	180 (coarse / fine)	120 (coarse / fine)	300 (coarse) 1,300 (fine)	2,800 (coarse) 5,600 (fine)		50 (coarse) 65 (fine)	85 (coarse) 105 (fine)	70 (coarse) 125 (fine)	105 (coarse) 45 (fine)	170	0.7 (coarse/ fine)				100					190 Cr(III)		95^	1,100*		30^		ACL:180 EIL: 280		180 (DDT)											
TS1-06 (BH1)	1/02/2018	Target 15 - former workshop area	0.40	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	100	1	<50	<1	12	9	6	20	65	10	<5	16	51	<0.1	-	-	-	-	-	-	-	-	-	-	-
TS1-07 (BH2)	1/02/2018	Target 15 - former workshop area	0.50	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	110	<1	<50	<1	2	2	<5	13	204	<2	<5	6	130	<0.1	-	-	-	-	-	-	-	-	-	-	-
TS1-08 (BH3)	1/02/2018	Target 15 - former workshop area	0.30	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	160	<1	<50	<1	17	21	21	62	753	7	<5	85	74	0.2	-	-	-	-	-	-	-	-	-	-	-
SV1	28/05/2018	Stockpile A Validation - southern end of footprint	-	<10	<50	150	<100	150	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SV2	28/05/2018	Stockpile A Validation - northern end of footprint	-	<10	<50	240	<100	240	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SV3	28/05/2018	Stockpile B Validation - southern end of footprint	-	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SV4	28/05/2018	Stockpile B Validation - southern end of footprint	-	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SV5	28/05/2018	Stockpile B Validation - middle of footprint	-	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SV6	28/05/2018	Stockpile B Validation - northern end of footprint	-	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T14-03-V01	28/05/2018	Target 14 Validation - base of T14-03	0.60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	40	<1	<50	<1	6	3	<5	8	54	4	<5	24	9	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP10V-01	30/05/2018	TP10 Validation - base	0.80	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-02	30/05/2018	TP10 Validation - base	0.80	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-03	30/05/2018	TP10 Validation - base	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-04	30/05/2018	TP10 Validation - base	0.60	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-05	30/05/2018	TP10 Validation - wall	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-06	30/05/2018	TP10 Validation - wall	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-07	30/05/2018	TP10 Validation - wall	0.60	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-08	30/05/2018	TP10 Validation - wall	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-09	30/05/2018	TP10 Validation - base	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-10	30/05/2018	TP10 Validation - base	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-11	30/05/2018	TP10 Validation - base	0.70	<10	<50	120	<100	120	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-12	30/05/2018	TP10 Validation - base	0.80	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-13	30/05/2018	TP10 Validation - base	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-14	30/05/2018	TP10 Validation - base	0.80	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-15	30/05/2018	TP10 Validation - base	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-16	30/05/2018	TP10 Validation - wall	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-17	30/05/2018	TP10 Validation - wall	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-18	30/05/2018	TP10 Validation - wall	0.70	<10	110	600	<100	710	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-19	31/05/2018	TP10 Validation - wall	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-20	31/05/2018	TP10 Validation - wall	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-21	31/05/2018	TP10 Validation - wall	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fill 1	31/05/2018	ACM Delineation Trenches - west end at "Jennys"	0-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	120	<1	<50	<1	8	9	27	141	276	11	<5	25	184	1.1	-	-	-	-	-	-	-	-	-	-	No
Fill 2	31/05/2018	ACM Delineation Trenches - small pit adjacent to building	0-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	310	<1	<50	<1	11	7	26	203	250	7	<5	26	630	0.8	-	-	-	-	-	-	-	-	-	-	No
Fill 3	31/05/2018	ACM Delineation Trenches - stockpile adjacent to trench A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	100	<1	<50	<1	4	4	10	38	243	6	<5	11	70	0.2	-	-	-	-	-	-	-	-	-	-	No
Fill 4	31/05/2018	ACM Delineation Trenches - stockpile adjacent to trench B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	120	<1	<50	<1	8	8	40	127	409	10	<5	25	290	2.8	-	-	-	-	-	-	-	-	-	-	No
Fill 5	31/05/2018	ACM Delineation Trenches - stockpile from trench C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	60	<1	<50	<1	6	8	37	53	303	8	<5	32	83	0.2	-	-	-	-	-	-	-	-	-	-	No
Fill 6	31/05/2018	ACM Delineation Trenches - stockpile from trench C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	130	<1	<50	<1	8	7	36	234	359	8	<5	31	275	0.4	-	-	-	-	-	-	-	-	-	-	No
Fill 7	31/05/2018	ACM Delineation Trenches - stockpile from trench D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	80	<1	<50	<1	7	6	28	76	225	8	<5	23	188	<0.1	-	-	-	-	-	-	-	-	-	-	No
Fill 8	31/05/2018	ACM Delineation Trenches - stockpile from trench D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	60	<1	<50	<1	7	5	16	68	157	6	<5	28	82	<0.1	-	-	-	-	-	-	-	-	-	-	No
Trench 1a	21/06/2018	Trench 1 - eastern centre of Property	0.60	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 1b	21/06/2018	Trench 1 - eastern centre of Property	0.50	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 2a	21/06/2018	Trench 2 - centre of Property	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 3a	21/06/2018	Trench 3 - western centre of Property	0.80	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 3b	21/06/2018	Trench 3 - western centre of Property	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 3c	21/06/2018	Trench 3 - western centre of Property	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 4a	21/06/2018	Trench 4 - western centre of Property	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 4b	21/06/2018	Trench 4 - western centre of Property	0.60	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW1 0.5-1m	5/07/2018	Groundwater well	0.5-1.0	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	110	<1	<50	<1	2	2	<5	13	204	<2	<5	6	130	<0.1	-	-	-	-	-	-	-	-	-	-	-
MW1 2.5-3m	5/07/2018	Groundwater well	2.5-3.0	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	160	<1	<50	<1	17	21	21	62	753	7	<5	85	74	0.2	-	-	-	-	-	-	-	-	-	-	-
MW1 5-5.5m	5/07/2018	Groundwater well	5-5.5	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW1 7.5-8m	5/07/2018	Groundwater well	7.5-8.0	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW1 10.5-11m	5/07/2018	Groundwater well	10.5-11.0	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TRS-01	12/09/2018	Trench 5 - parallel to southern fence line	0.20	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	30	<1	<50	<1	6	7	34	11	284	10	<5	25	33	<0.1	-	-	-	-	-	-	-	-	-	-	-
TRS-02	12/09/2018	Trench 5 - parallel to southern fence line	0.30	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	50	<1	<50	<1	8	12	66	36	372	14	<5	40	76	0.3	-	-	-	-	-	-	-	-	-	-	-
TRS-03	12/09/2018	Trench 5 - parallel to southern fence line	0.50	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	130	<1	<50	<1	7	6	37	159	250	9	<5	22	189	0.4	-	-	-	-	-	-	-	-	-	-	-
TRS-04	12/09/2018	Trench 5 - parallel to southern fence line	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	30	1	<50	<1	13	13	6	12	61	9	<5	22	31	<0.1	-	-	-	-	-	-	-	-	-	-	-
TRS-05	12/09/2018	Trench 5 - parallel to southern fence line	0.90	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	60	<1	<50	<1	12	11	<5	20	45	9	<5	28	25	<0.1	-	-	-	-	-	-	-	-	-	-	-
TR6-01	12/09/2018	Trench 6 - between AST remedial excavation and eastern fence	0.30	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	160	<1	<50	<1	6	5	33	245	332	5	<5	16	155	0.6	-	-	-	-	-	-	-	-	-	-	-
TR6-02	12/09/2018	Trench 6 - between AST remedial excavation and eastern fence	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	20	<1	<50	<1	4	3	<5	8	48	4	<5	10	16	<0.1	-	-	-	-	-	-	-	-	-	-	-
TR6-03	12/09/2018	Trench 6 - between AST remedial excavation and eastern fence	0.30	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	160	<1	<50	<1	10	5	28	139	297	6	<5	24	161	0.4	-	-	-	-	-	-	-	-	-	-	-
TR6-04	12/09/2018	Trench 6 - between AST remedial excavation and eastern fence	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	20	<1	<50	<1	5	5	<5	<5	57	5	<5	12	12	<0.1	-	-	-	-	-	-	-	-	-	-	-
TR6-05	12/09/2018	Trench 6 - between AST remedial excavation and eastern fence	0.20	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	20	<1	<50	<1	9	14	79	<5	416	23	<5	47	26	<0.1	-	-	-	-	-	-	-	-	-	-	-
TR6-06	12/09/2018	Trench 6 - remedial excavation validation	0.50	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	5	110	<1	<50	<1	8	9	40	114	262	14	<5	27	100	0.2	-	-	-	-	-	-	-	-	-	-	-
TR6-07	12/09/2018	Trench 6 - remedial excavation validation	0.60	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	40	<1	<50	<1	7	11	56	21	316	16	<5	34	55	<0.1	-	-	-	-	-	-	-	-	-	-	-
TR6-08	12/09/2018	Trench 6 - remedial excavation validation	0.60	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	50	<1	<50	<1	6	6	7	107	110	5	<5	18	87	<0.1	-	-	-	-	-	-	-	-	-	-	-
TR6-09	12/09/2018	Trench 6 - remedial excavation validation	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	70	<1	<50	<1	9	7	18	13	82	8	<5	25	105	<0.1	-	-	-	-	-	-	-	-	-	-	-
TR6-10	12/09/2018	Trench 6 - remedial excavation validation	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	20	<1	<50	<1	4	4	<5	5	51	4	<5	11	10	<0.1	-	-	-	-	-	-	-	-	-	-	-
TR6-11	12/09/2018	Trench 6 - remedial excavation validation	0.70	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	40	<1	<50	<1	6	5	8	19	93	5	<5	12	29	<0.1	-	-	-	-	-	-	-	-	-	-	-
SWP01	12/09/2018	Sewer Pipeline Trench - perpendicular to Church Street Entrance	1.35	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	40	<1	<50	<1	6	8	37	6	315	10	<5	23	18	<0.1	-	-	-	-	-	-	-	-	-	-	-
SWP02	12/09/2018	Sewer Pipeline Trench - perpendicular to Church Street Entrance	1.30	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	20	<1	<50	<1	4	4	11	25	104	7	<5	13	14	<0.1	-	-	-	-	-	-	-	-	-	-	-
SWP03	12/09/2018	Sewer Pipeline Trench - perpendicular to Church Street Entrance	1.30	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	30	<1	<50	<1	2	<2	<5	8	69	2	<5	5	20	<0.1	-	-	-	-	-	-	-	-	-	-	-
SWP04	12/09/2018	Sewer Pipeline Trench - perpendicular to Church Street Entrance	1.30	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	80	<1	<50	<1	12	3	5	28	23	4	<5	23	11	<0.1	-	-	-	-	-	-	-	-	-	-	-

4193.005 - Oatlands DSI			Analyte Group	TRH					BTEXN					PAH		Phenols		Heavy Metals																		Organochlorine Pesticides								Herbicides			Asbestos
			Analyte	C6-C10 minus BTEX (F1)	>C10-C16 minus Naphthalene (F2)	>C16-C34 (F3)	>C34-C40 (F4)	Sum (>C10-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	Benz(a)pyrene	Carcinogenic PAHs (as BaP TEQ)	Total PAHs	Pentachlorophenol	Phenol	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Vanadium	Zinc	Mercury	DDT + DDE + DDD	Aldrin + Dieldrin	Chlordane (sum)	Endosulfan (sum)	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	2,4,5-T	2,4-D	MCPA	Asbestos (presence / absence)
			ASC NEPM HIL/HSL D (commercial / industrial)	260-NL (sand) 250-NL (silt) 310-NL (clay)	NL (all soil types)				3 (sand) 4-10 (silt) 4-20 (clay)	NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)	40	4,000	660	240,000	3,000		500	300,000	900	3,600 Cr(VI)	4,000	240,000	1,500	60,000	6,000	10,000		400,000	730 inorganic	3,600	45	530	2,000	100	50	80	2,500	5,000	9,000	5,000	
			ASC NEPM HIL/HSL C (recreational)	NL (all soil types)	NL (all soil types)				NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)	3	300	120	40,000	300		90	20,000	90	300 Cr(VI)	300	17,000	600	19,000	1,200	700		30,000	80 (inorganic)	400	10	70	340	20	10	10	400	800	1,300	800	
			ASC NEPM HIL/HSL A (residential with garden / accessible soil)	45-200 (sand) 40-190 (silt) 50-290 (clay)	110-NL (sand) 230-NL (silt) 280-NL (clay)				0.5 (sand) 0.6-2 (silt) 0.7-3 (clay)	160-540 (sand) 390-NL (silt) 480-NL (clay)	55-NL (sand) NL (silt) NL (clay)	40-170 (sand) 95-NL (silt) 110-NL (clay)	3-NL (sand) 4-NL (silt) 5-NL (clay)	3	300	100	3,000	100		60	4,500	20	100 Cr(VI)	100	6,000	300	3,800	400	200		7,400	40 (inorganic)	240	6	50	270	10	6	10	300	600	900	600	
			ASC NEPM EIL/ESL (commercial / industrial)	215 (coarse / fine)	170 (coarse / fine)	1,700 (coarse) 2,500 (fine)	3,300 (coarse) 6,600 (fine)		75 (coarse) 95 (fine)	135 (coarse / fine)	165 (coarse) 185 (fine)	180 (coarse) 95 (fine)	370	1.4 (coarse / fine)				160					310 Cr(III)		140^	1,800*		55^		ACL:280^ EIL:380		640 (DDT)											
			ASC NEPM EIL/ESL urban residential / public open space)	180 (coarse / fine)	120 (coarse / fine)	300 (coarse) 1,300 (fine)	2,800 (coarse) 5,600 (fine)		50 (coarse) 65 (fine)	85 (coarse) 105 (fine)	70 (coarse) 125 (fine)	105 (coarse) 45 (fine)	170	0.7 (coarse/ fine)				100					190 Cr(III)		95^	1,100*		30^		ACL:180 EIL: 280		180 (DDT)											
SWP05	12/09/2018	Sewer Pipeline Trench - perpendicular to Church Street Entrance	1.30	<10	<50	280	<100	280	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	<5	40	<1	<50	<1	5	5	13	13	132	6	<5	16	23	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP17-02	1/11/2018	Additional grid location - old workshop	0.50	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	<5	50	<1	<50	<1	7	4	9	30	29	5	<5	12	55	0.1	-	-	-	-	-	-	-	-	-	-	-
TP18-01	1/11/2018	Additional grid location - residential lots	0.10	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	<5	50	<1	<50	<1	13	17	70	<5	468	23	<5	57	30	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP18-02	1/11/2018	Additional grid location - residential lots	0.40	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	<5	50	<1	<50	<1	6	6	17	8	182	7	<5	19	22	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP19-01	1/11/2018	Additional grid location - residential lots	0.10	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	<5	20	<1	<50	<1	8	15	76	<5	502	21	<5	51	32	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP19-02	1/11/2018	Additional grid location - residential lots	0.30	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	<5	60	<1	<50	<1	8	5	21	24	282	9	<5	22	30	<0.1	-	-	-	-	-	-	-	-	-	-	-
L2-V5	1/11/2018	Stockpile validation - small L2 stockpile from Trench 6	-	<10	<50	200	<100	200	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	<5	50	<1	<50	<1	6	9	33	22	251	9	<5	39	77	<0.1	-	-	-	-	-	-	-	-	-	-	-
L1-V1	1/11/2018	Stockpile validation - large L1 stockpile NE of large hydrocarbon excavation	-	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L1-V2	1/11/2018	Stockpile validation - large L1 stockpile NE of large hydrocarbon excavation	-	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L1-V3	1/11/2018	Stockpile validation - large L1 stockpile NE of large hydrocarbon excavation	-	<10	<50	170	<100	170	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L3-V1	1/11/2018	Stockpile validation - L3 stockpile bioremediated to L1	-	<10	<50	960	180	1140	<0.2	<0.5	<0.5	<0.5	<1																																
MR01	18/12/2018	Metals remediation excavation validation	0.20	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	30	<1	<50	<1	<2	<2	<5	<5	40	<2	<5	<5	<5	<0.1	-	-	-	-	-	-	-	-	-	-	-
MR02	18/12/2018	Metals remediation excavation validation	0.20	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	30	<1	<50	<1	<2	<2	<5	<5	33	<2	<5	<5	<5	<0.1	-	-	-	-	-	-	-	-	-	-	-
MR03	18/12/2018	Metals remediation excavation validation	0.30	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	50	<1	<50	<1	3	<2	<5	34	82	2	<5	7	20	0.4	-	-	-	-	-	-	-	-	-	-	-
MR04	18/12/2018	Metals remediation excavation validation	0.20	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	60	<1	<50	<1	2	<2	20	20	48	5	<5	<5	14	0.2	-	-	-	-	-	-	-	-	-	-	-
MR05	18/12/2018	Metals remediation excavation validation	0.50	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	80	<1	<50	<1	5	6	22	129	273	8	<5	18	110	0.3	-	-	-	-	-	-	-	-	-	-	-
MR06	18/12/2018	Metals remediation excavation validation	0.30	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	30	<1	<50	<1	<2	<2	<5	<5	29	<2	<5	<5	<5	<0.1	-	-	-	-	-	-	-	-	-	-	-
MR07	18/12/2018	Metals remediation excavation validation	0.50	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	70	<1	<50	<1	4	<2	14	134	71	2	<5	7	49	<0.1	-	-	-	-	-	-	-	-	-	-	-
MR08	18/12/2018	Metals remediation excavation validation (in trench)	1.10	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	20	<1	<50	<1	5	2	<5	<5	20	3	<5	8	5	<0.1	-	-	-	-	-	-	-	-	-	-	-
MR09	18/12/2018	Metals remediation excavation validation	0.80	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	40	<1	<50	<1	8	8	<5	8	109	9	<5	14	41	<0.1	-	-	-	-	-	-	-	-	-	-	-
MR10	18/12/2018	Metals remediation excavation validation (in trench)	0.20	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	70	<1	<50	<1	4	4	8	81	204	5	<5	8	66	0.3	-	-	-	-	-	-	-	-	-	-	-
MR11	18/12/2018	Metals remediation excavation validation	0.30	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	100	<1	<50	<1	4	4	10	24	153	4	<5	12	19	0.3	-	-	-	-	-	-	-	-	-	-	-
MR12	18/12/2018	Metals remediation excavation validation (in trench)	0.40	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	40	<1	<50	<1	2	2	<5	16	254	2	<5	6	28	0.1	-	-	-	-	-	-	-	-	-	-	-
MR13	18/12/2018	Metals remediation excavation validation	0.40	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	90	<1	<50	<1	4	4	9	69	306	4	<5	10	37	1.1	-	-	-	-	-	-	-	-	-	-	-
MR14	18/12/2018	Metals remediation excavation validation (in trench)	0.50	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	60	<1	<50	<1	5	6	28	108	240	6	<5	17	82	0.8	-	-	-	-	-	-	-	-	-	-	-
OPbVal01	14/05/2019	Footprint validation of metals contaminated waste soil stockpiles	0-0.05	-	-	-	-	-	-	-	-	-	-	<0.5	<1.2	<0.5	-	-	<5	70	<1	<50	<1	20	13	61	38	994	29	<5	30	809	<0.1	-	-	-	-	-	-	-	-	-	-	-
OPbVal02	14/05/2019	Footprint validation of metals contaminated waste soil stockpiles	0-0.05	-	-	-	-	-	-	-	-	-	-	<0.5	<1.2	<0.5	-	-	<5	50	<1	<50	<1	10	11	55	28	295	15	<5	43	105	<0.1	-	-	-	-	-	-	-	-	-	-	-
OPbVal03	14/05/2019	Footprint validation of metals contaminated waste soil stockpiles	0-0.05	-	-	-	-	-	-	-	-	-	-	<0.5	<1.2	<0.5	-	-	<5	60	<1	<50	<1	9	13	36	22	376	16	<5	25	104	<0.1	-	-	-	-	-	-	-	-	-	-	-
OPbVal04	14/05/2019	Footprint validation of metals contaminated waste soil stockpiles	0-0.05	-	-	-	-	-	-	-	-	-	-	<0.5	<1.2	<0.5	-	-	<5	80	<1	<50	<1	7	17	40	74	428	10	<5	30	340	0.2	-	-	-	-	-	-	-	-	-	-	-
OPbVal05	14/05/2019	Footprint validation of metals contaminated waste soil stockpiles	0-0.05	-	-	-	-	-	-	-	-	-	-	<0.5	<1.2	<0.5	-	-	<5	70	<1	<50	<1	11	12	52	272	324	16	<5	34	131	0.2	-	-	-	-	-	-	-	-	-	-	-
Summary Statistics		**Number of Data Points**		162	162	162	162	162	162	162	162	162	176	105	105	105	54	54	117	117	117	117	117	117	117	117	129	117	117	117	117	117	8	8	8	8	8	8	8	8	8	8	8
		Number of Detects		0	5	18	3	18	0	0	0	0	0	0	2	2	0	0	3	117	3	0	1	112	106	87	108	117	111	0	110	114	36	0	0	0	0	0	0	0	0	1	0	0	0
		Minimum		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	10	<1	<50	<1	<2	<2	<5	<5	20	<2	<5	<5	<5	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.02	<0.02	no
		Maximum		<10	430	960	180	1140	<0.2	<0.5	<0.5	<0.5	<1	<0.5	1.2	1.5	<2	<0.5	31	1320	4	<50	2	30	21	116	371	1140	29	<5	85	809	2.8	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	0.04	<0.02	<0.02	no
		Average (<LOR replaced with LOR value)		nc	55	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	198	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc

Legend:

222	value equals or exceeds at least one of the human health criteria
222	value equals or exceeds at least one of the ecological criteria
222	value equals or exceeds ACL and calculated Zn EIL
222	value equals or exceeds at least one of the human health criteria plus at least one of the ecological criteria
	human health criteria
	ecological criteria
	indicates silica gel clean-up results
222	bold value indicates result is > LOR
222	guideline value is the most conservative ACL - based on the lowest clay content (% clay)
222	greyed out samples represent soils that were removed during subsequent round of remedial excavation
*	guideline value is the generic ACL
^	guideline value is the most conservative ACL - calculated from three classification samples:
	Copper ACL - calculated to be 95 mg/kg - 190 mg/kg (urban residential and public open space) and 140 mg/kg - 280 mg/kg (commercial / industrial)
	Nickel ACL - calculated to be 30 mg/kg - 170 mg/kg (urban residential and public open space) and 55 mg/kg - 290 mg/kg (commercial / industrial)
	Zinc ACL - calculated to be 180 mg/kg - 400 mg/kg (urban residential and public open space) and 280 mg/kg - 620 mg/kg (commercial / industrial)
<20	less than value indicates result is less than the LOR
ACL	Added Contaminant Limit
LOR	Laboratory Limit of Reporting
NL	Not Limiting
HIL / HSL	Health Investigation Level / Health Screening Level
EIL / ESL	Ecological Investigation Level / Ecological Screening Level
nc	not calculated
	Grid locations with "resampled" were resampled due to ice-melt preventing analysis of the original samples

References:

ASC NEPM — National Environment Protection (Assessment of Site Contamination) Measure 1999, amended 2013 (ASC NEPM, 2013)

SUMMARY RESULTS - SOIL in Recreational / Open Space Setting (excluding waste soils)

4193.005 - Oatlands DSI

Analyte Group				TRH					BTEXN					PAH		Phenols		Heavy Metals														Organochlorine Pesticides							Herbicides			Asbestos
Analyte				C6-C10 minus BTEX (F1)	>C10-C16 minus Naphthalene (F2)	>C16-C34 (F3)	>C34-C40 (F4)	Sum (>C10-C40)	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	Naphthalene	Benzo(a)pyrene	Carcinogenic PAHs (as BaP TEQ)	Total PAHs	Pentachlorophenol	Phenol	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Vanadium	Zinc	Mercury	DDT + DDE + DDD	Aldrin + Dieldrin	Chlordane (sum)	Endosulfan (sum)	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	2,4,5-T	2,4-D	MCPA	Asbestos (presence / absence)
	ASC NEPM HIL/HSL D (commercial / industrial)		260-NL (sand) 250-NL (silt) 310-NL (clay)	NL (all soil types)				3 (sand) 4-10 (silt) 4-20 (clay)	NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)		40	4,000	660	240,000	3,000		500	300,000	900	3,600 Cr(VI)	4,000	240,000	1,500	60,000	6,000	10,000	400,000	730 (inorganic)	3,600	45	530	2,000	100	50	80	2,500	5,000	9,000	5,000	
	ASC NEPM HIL/ HSL C (recreational)		**NL (all soil types)**	**NL (all soil types)**				**NL (all soil types)**	**NL (all soil types)**	**NL (all soil types)**	**NL (all soil types)**	**NL (all soil types)**		**3**	**300**	**120**	**40,000**	**300**		**90**	**20,000**	**90**	**300 Cr(VI)**	**300**	**17,000**	**600**	**19,000**	**1,200**	**700**		**30,000**	**80 (inorganic)**	**400**	**10**	**70**	**340**	**20**	**10**	**10**	**400**	**800**	**1,300**	**800**	
	ASC NEPM HIL/HSL A (residential with garden / accesible soil)		45-200 (sand) 40-190 (silt) 50-290 (clay)	110-NL (sand) 230-NL (silt) 280-NL (clay)				0.5 (sand) 0.6-2 (silt) 0.7-3 (clay)	160-540 (sand) 390-NL (silt) 480-NL (clay)	55-NL (sand) NL (silt) NL (clay)	40-170 (sand) 95-NL (silt) 110-NL (clay)	3-NL (sand) 4-NL (silt) 5-NL (clay)		3	300	100	3,000	100		60	4,500	20	100 Cr(VI)	100	6,000	300	3,800	400	200		7,400	40 (inorganic)	240	6	50	270	10	6	10	300	600	900	600	
	ASC NEPM EIL/ESL (commercial / industrial)		215 (coarse / fine)	170 (coarse / fine)	1,700 (coarse) 2,500 (fine)	3,300 (coarse) 6,600 (fine)		75 (coarse) 95 (fine)	135 (coarse / fine)	165 (coarse) 185 (fine)	180 (coarse) 95 (fine)	370		1.4 (coarse/ fine)				160					310 Cr(III)		140^	1,800*		55^		ACL: 280^ EIL: 380		640 (DDT)											
	ASC NEPM EIL/ESL urban residential / public open space)		**180 (coarse / fine)**	**120 (coarse / fine)**	**300 (coarse) 1,300 (fine)**	**2,800 (coarse) 5,600 (fine)**		**50 (coarse) 65 (fine)**	**85 (coarse) 105 (fine)**	**70 (coarse) 125 (fine)**	**105 (coarse) 45 (fine)**	**170**		**0.7 (coarse/ fine)**				**100**					**190 Cr(III)**		**95^**	**1,100***		**30^**		**ACL: 180^ EIL: 280**		**180 (DDT)**										
Sample ID	**Date Sampled**	**Site**	**Depth (m)**	**Units**	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	g/kg
TP1-01	6/02/2018	Grid location - resampled	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	***1.2***	<0.5			<5	***40***	<1	<50	<1	***6***	***8***	***38***	***7***	***322***	***14***	<5	***23***	***30***	<0.1											
TP1-02	31/01/2018	Grid location	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	***1.2***	<0.5			<5	***50***	<1	<50	<1	***8***	***9***	***42***	***17***	***359***	***17***	<5	***30***	***31***	<0.1											
TP2-01	6/02/2018	Grid location - resampled	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	***1.2***	<0.5			<5	***40***	<1	<50	<1	***9***	***11***	***45***	<5	***308***	***17***	<5	***38***	***31***	<0.1											
TP2-02	31/01/2018	Grid location	0.40		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	***1.2***	<0.5			<5	***40***	<1	<50	<1	***6***	<5	***24***	***13***	***193***	***8***	<5	***19***	***18***	<0.1											
TP3-01	6/02/2018	Grid location - resampled	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	***1.2***	<0.5			<5	***20***	<1	<50	<1	***6***	***13***	***83***	<5	***370***	***20***	<5	***53***	***26***	<0.1											
TP3-02	31/01/2018	Grid location	0.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	***1.2***	<0.5			<5	***30***	<1	<50	<1	***3***	<2	<5	***7***	***22***	***2***	<5	<5	***6***	<0.1											
TP4-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	***1.2***	<0.5			<5	***20***	<1	<50	<1	***5***	***11***	***71***	***8***	***355***	***17***	<5	***43***	***55***	<0.1											
TP4-02	31/01/2018	Grid location	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	***1.2***	<0.5			<5	***100***	<1	<50	<1	***7***	***11***	***15***	***102***	***446***	***6***	<5	***34***	***77***	<0.1											
TP5-01	6/02/2018	Grid location - resampled	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	***1.2***	<0.5			<5	***20***	<1	<50	<1	***5***	***12***	***70***	<5	***330***	***17***	<5	***41***	***25***	<0.1											
TP5-02	31/01/2018	Grid location	0.60		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	***1.2***	<0.5			<5	***30***	<1	<50	<1	***12***	***4***	***17***	***14***	***94***	***5***	<5	***24***	***38***	<0.1											
TP6-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***20***	<1	<50	<1	***5***	***12***	***72***	<5	***347***	***17***	<5	***37***	***57***	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP6-02	6/02/2018	Grid location - resampled	0.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***110***	<1	<50	<1	***5***	***5***	***12***	***231***	***365***	***4***	<5	***16***	***55***	***0.2***	-	-	-	-	-	-	-	-	-	-	-
TP7-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***20***	<1	<50	<1	***30***	***10***	***69***	***125***	***287***	***16***	<5	***35***	***531***	***0.3***	-	-	-	-	-	-	-	-	-	-	-
TP7-02	31/01/2018	Grid location	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***60***	<1	<50	<1	***4***	***5***	***22***	***24***	***209***	***6***	<5	***14***	***37***	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP8-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***20***	<1	<50	<1	***5***	***12***	***76***	<5	***337***	***17***	<5	***41***	***28***	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP8-02	31/01/2018	Grid location	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***90***	<1	<50	<1	***4***	***4***	***17***	***31***	***415***	***6***	<5	***12***	***29***	***0.1***	-	-	-	-	-	-	-	-	-	-	-
TP9-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***20***	<1	<50	<1	***10***	***18***	***74***	<5	***550***	***24***	<5	***53***	***27***	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP9-02	6/02/2018	Grid location - resampled	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***70***	<1	<50	<1	***5***	***7***	***25***	***69***	***443***	***8***	<5	***19***	***65***	***0.1***	-	-	-	-	-	-	-	-	-	-	-
TP11-01	31/01/2018	Grid location	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***40***	<1	<50	<1	<2	<2	<5	***8***	***58***	<2	<5	<5	***26***	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP11-02	31/01/2018	Grid location	0.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***30***	<1	<50	<1	<2	<2	<5	***8***	***38***	<2	<5	<5	***24***	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP12-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***20***	<1	<50	<1	***10***	***11***	***63***	<5	***278***	***17***	<5	***39***	***30***	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP12-02	31/01/2018	Grid location	0.40		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***50***	<1	<50	<1	***3***	***2***	***6***	***15***	***86***	***2***	<5	***6***	***29***	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP12-03	31/01/2018	Grid location	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***160***	***4***	<50	<1	***12***	***14***	***6***	***14***	***1140***	***6***	<5	***64***	***8***	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.02	<0.02	<0.02	-
TP13-01	31/01/2018	Grid location	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***70***	<1	<50	<1	***5***	***4***	***15***	***41***	***223***	***4***	<5	***13***	***49***	***0.4***	-	-	-	-	-	-	-	-	-	-	-
TP13-02	31/01/2018	Grid location	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***40***	<1	<50	<1	***3***	***3***	<5	***6***	***105***	***3***	<5	***8***	***8***	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP14-01	31/01/2018	Grid location	0.15		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***1320***	<1	<50	***2***	***22***	***4***	***116***	***371***	***688***	***7***	<5	***11***	***675***	***0.4***	-	-	-	-	-	-	-	-	-	-	-
TP15-01	31/01/2018	Grid location	0.10		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	***31***	***240***	<1	<50	<1	***12***	***6***	***55***	***158***	***484***	***12***	<5	***19***	***244***	***0.5***	-	-	-	-	-	-	-	-	-	-	-
TP15-02	31/01/2018	Grid location	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***60***	<1	<50	<1	***4***	***4***	***9***	***27***	***79***	***4***	<5	***9***	***38***	***0.1***	-	-	-	-	-	-	-	-	-	-	-
TP16-01	31/01/2018	Grid location	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***80***	<1	<50	<1	***4***	***4***	***18***	***43***	***165***	***5***	<5	***13***	***104***	***0.1***	-	-	-	-	-	-	-	-	-	-	-
TP16-02	31/01/2018	Grid location	0.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***30***	<1	<50	<1	***4***	***2***	***5***	***15***	***55***	***4***	<5	***9***	***14***	<0.1	-	-	-	-	-	-	-	-	-	-	-
T1-01	20/02/2018	Target 1 - SE wall south of SW manhole	0.80		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	***14***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-02	20/02/2018	Target 1 - SE wall along south wall	0.80		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	***42***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-03	20/02/2018	Target 1 - SW of south wall	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	***25***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-04	20/02/2018	Target 1 - West wall south end	0.80		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-05	20/02/2018	Target 1 - South wall	1.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	***9***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-06	20/02/2018	Target 1 - West wall southern half	1.30		<10	***110***	***290***	<100	***400***	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	***35***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-07	20/02/2018	Target 1 - West wall northern half	1.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	***11***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-10	20/02/2018	Target 1 - East of sewer pit	1.20		<10	<50	***130***	<100	***130***	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	***65***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-11	20/02/2018	Target 1 - NE wall	1.40		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	***60***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-12	20/02/2018	Target 1 - South base	1.50		<10	***60***	***110***	<100	***170***	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	***21***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-13	20/02/2018	Target 1 - Centre base	1.40		<10	***430***	***710***	<100	***1140***	<0.2	<0.5	<0.5	<0.5	<1	<0.5	***1.2***	***1.5***	<2	<0.5	-	-	-	-	-	-	-	***44***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T1-14	20/02/2018	Target 1 - North base	1.50		<10	***270***	***400***	<100	***670***	<0.2	<0.5	<0.5	<0.5	<1	<0.5	***1.2***	***0.7***	<2	<0.5	-	-	-	-	-	-	-	***44***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T2-Wall 1	2/02/2018	Target 2 - pit wall	1.40		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***30***	<1	<50	<1	***7***	***7***	***8***	***6***	***222***	***5***	<5	***49***	***11***	<0.1	-	-	-	-	-	-	-	-	-	-	-
T2-Wall 2	2/02/2018	Target 2 - pit wall	1.40		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***20***	<1	<50	<1	***7***	***4***	<5	***7***	***27***	***5***	<5	***18***	***10***	<0.1	-	-	-	-	-	-	-	-	-	-	-
T2-Wall 3	2/02/2018	Target 2 - pit wall	1.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***30***	<1	<50	<1	***6***	***6***	***6***	***9***	***181***	***4***	<5	***49***	***9***	<0.1	-	-	-	-	-	-	-	-	-	-	-
T2-Wall 4	2/02/2018	Target 2 - pit wall	1.00		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***50***	<1	<50	<1	***10***	***6***	<5	***13***	***35***	***7***	<5	***16***	***15***	<0.1	-	-	-	-	-	-	-	-	-	-	-
T2-Base	2/02/2018	Target 2 - base	1.00		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	-	-	<5	***30***	<1	<50	<1	***5***	***6***	***7***	***8***	***167***	***4***	<5	***36***	***12***	<0.1	-	-	-	-	-	-	-	-	-	-	-
T3-fuel line	2/02/2018	Target 3 - fuel line from tank to bowser	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T3-bowser base	2/02/2018	Target 3 - base of diesel bowser	0.30		<10	<50	***170***	<100	***170***	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T3-Wall 1	2/02/2018	Target 3 - pit wall	2.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T3-Wall 2	2/02/2018	Target 3 - pit wall	2.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T3-Wall 3	2/02/2018	Target 3 - pit wall	2.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T3-Wall 4	2/02/2018	Target 3 - pit wall	2.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T3-Base	2/02/2018	Target 3 - base	2.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T4-01	1/02/2018	Target 4 - wash bay	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	***20***	<1	<50	<1	***4***	***2***	<5	***6***	***84***	***4***	<5	***8***	***17***	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.02	<0.02	<0.02	-
T4-02	1/02/2018	Target 4 - wash bay	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	***30***	<1	<50	<1	***9***	***5***	***6***	***6***	***139***	***19***	<5	***39***	***30***	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.02	<0.02	<0.02	-
T4-03	1/02/2018	Target 4 - wash bay	0.30		<10	<50	***300***	<100	***300***	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	***70***	<1	<50	<1	***4***	<2	***8***	***27***	***133***	***3***	<5	***9***	***67***	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.02	<0.02	<0.02	-
T4-04	1/02/2018	Target 4 - wash bay	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	***30***	<1	<50	<1	***4***	***3***	<5	***11***	***72***	***4***	<5	***8***	***35***	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.02	<0.02	<0.02	-
T4-05	1/02/2018	Target 4 - wash bay	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	***20***	<1	<50	<1	***3***	***2***	<5	***8***	***66***	***3***	<5	***11***	***18***	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.02	<0.02	<0.02	-
T5-01	1/02/2018	Target 5 - vehicle service pit	1.50		<10	<50	***840***	***160***	***1000***	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	***40***	<1	<50	<1	***8***	***6***	***21***	***19***	***145***	***10***	<5	***19***	***23***	<0.1	-	-	-	-	-	-	-	-	-	-	-
T5-02	1/02/2018	Target 5 - vehicle service pit	1.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	***10***	<1	<50	<1	***6***	***5***	<5	***6***	***126***	***5***	<5	***18***	***13***	<0.1	-	-	-	-	-	-	-	-	-	-	-
T5-03	1/02/2018	Target 5 - vehicle service pit	1.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	***20***	<1	<50	<1	***6***	***5***	<5	<5	***152***	***6***	<5	***14***	***11***	<0.1	-	-	-	-	-	-	-	-	-	-	-
T5-04	1/02/2018	Target 5 - vehicle service pit	1.50		<10	<50	***540***	***110***	***650***	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	***20***	<1	<50	<1	***5***	***5***	***8***	<5	***92***	***7***	<5	***10***	***16***	<0.1	-	-	-	-	-	-	-	-	-	-	-
T5-05	1/02/2018	Target 5 - vehicle service pit	1.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	***30***	<1	<50	<1	***8***	***8***	***37***	***5***	***170***	***14***	<5	***30***	***21***	<0.1	-	-	-	-	-	-	-	-	-	-	-
T5-06	1/02/2018	Target 5 - end of vehicle service shed and store	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	***20***	<1	<50	<1	***5***	***9***	***42***	<5	***229***	***13***	<5	***32***	***24***	<0.1	-	-	-	-	-	-	-	-	-	-	-
T5-07	1/02/2018	Target 5 - end of vehicle service shed and store	0.20		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	***20***	<1	<50	<1	***5***	***8***	***44***	<5	***208***	***12***	<5	***34***	***16***	<0.1	-	-	-	-	-	-	-	-	-	-	-
T5-08	1/02/2018	Target 5 - end of vehicle service shed and store	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	***20***	<1	<50	<1	***7***	***12***	***70***	<5	***354***	***18***	<5	***48***	***40***	<0.1	-	-	-	-	-	-	-	-	-	-	-
T5-09	1/02/2018	Target 5 - end of vehicle service shed and store	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	***20***	<1	<50	<1	***5***	***13***	***72***	<5	***367***	***19***	<5	***45***	***23***	<0.1	-	-	-	-	-	-	-	-	-	-	-
T6-01	1/02/2018	Target 6 - oil store and old pesticide store	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T6-02	1/02/2018	Target 6 - oil store and old pesticide store

4193.005 - Oatlands DSI		Analyte Group	TRH					BTEXN					PAH			Phenols		Heavy Metals														Organochlorine Pesticides							Herbicides			Asbestos
		Analyte	C6-C10 minus BTEX (F1)	>C10-C16 minus Naphthalene (F2)	>C16-C34 (F3)	>C34-C40 (F4)	Sum (>C10-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	Benzo(a)pyrene	Carcinogenic PAHs (as BaP TEQ)	Total PAHs	Pentachlorophenol	Phenol	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Vanadium	Zinc	Mercury	DDT + DDE + DDD	Aldrin + Dieldrin	Chlordane (sum)	Endosulfan (sum)	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	2,4,5-T	2,4-D	MCPA	Asbestos (presence / absence)
		ASC NEPM HIL/HSL D (commercial / industrial)	260-NL (sand) 250-NL (silt) 310-NL (clay)	NL (all soil types)				3 (sand) 4-10 (silt) 4-20 (clay)	NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)		40	4,000	660	240,000	3,000		500	300,000	900	3,600 Cr(VI)	4,000	240,000	1,500	60,000	6,000	10,000		400,000	730 (inorganic)	3,600	45	530	2,000	100	50	80	2,500	5,000	9,000	5,000	
		ASC NEPM HIL/ HSL C (recreational)	**NL (all soil types)**	**NL (all soil types)**				**NL (all soil types)**	**NL (all soil types)**	**NL (all soil types)**	**NL (all soil types)**	**NL (all soil types)**		**3**	**300**	**120**	**40,000**	**300**		**90**	**20,000**	**90**	**300 Cr(VI)**	**300**	**17,000**	**600**	**19,000**	**1,200**	**700**		**30,000**	**80 (inorganic)**	**400**	**10**	**70**	**340**	**20**	**10**	**10**	**400**	**800**	**1,300**	**800**	
		ASC NEPM HIL/HSL A (residential with garden / accessible soil)	45-200 (sand) 40-190 (silt) 50-290 (clay)	110-NL (sand) 230-NL (silt) 280-NL (clay)				0.5 (sand) 0.6-2 (silt) 0.7-3 (clay)	160-540 (sand) 390-NL (silt) 480-NL (clay)	55-NL (sand) NL (silt) NL (clay)	40-170 (sand) 95-NL (silt) 110-NL (clay)	3-NL (sand) 4-NL (silt) 5-NL (clay)		3	300	100		100		60	4,500	20	100 Cr(VI)	100	6,000	300	3,800	400	200		7,400	40 (inorganic)	240	6	50	270	10	6	10	300	600	900	600	
		ASC NEPM EIL/ESL (commercial / industrial)	215 (coarse / fine)	170 (coarse / fine)	1,700 (coarse) 2,500 (fine)	3,300 (coarse) 6,600 (fine)		75 (coarse) 95 (fine)	135 (coarse / fine)	165 (coarse) 185 (fine)	180 (coarse) 95 (fine)	370	1.4 (coarse/ fine)					160					310 Cr(III)		140^	1,800*		55^			ACL: 280^ EIL: 380	640 (DDT)										
		ASC NEPM EIL/ESL urban residential / public open space)	**180 (coarse / fine)**	**120 (coarse / fine)**	**300 (coarse) 1,300 (fine)**	**2,800 (coarse) 5,600 (fine)**		**50 (coarse) 65 (fine)**	**85 (coarse) 105 (fine)**	**70 (coarse) 125 (fine)**	**105 (coarse) 45 (fine)**	**170**	**0.7 (coarse/ fine)**					**100**					**190 Cr(III)**		**95^**	**1,100***		**30^**			**ACL: 180^ EIL: 280**	**180 (DDT)**										
T15-05	1/02/2018	*Target 15 - former workshop & poss. UPSS*	*0.30*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	*<0.5*	*<1.2*	*<0.5*	*<2*	*<0.5*	*<5*	***100***	*<1*	*<50*	*<1*	***4***	***3***	***40***	***59***	***222***	***3***	*<5*	***9***	***149***	***0.2***	-	-	-	-	-	-	-	-	-	-	-
T15-06 (BH1)	1/02/2018	Target 15 - former workshop area	0.40		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	**100**	**1**	<50	<1	**12**	**9**	**6**	**20**	**65**	**10**	<5	**16**	**51**	<0.1	-	-	-	-	-	-	-	-	-	-	-
T15-07 (BH2)	1/02/2018	Target 15 - former workshop area	0.50		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	**110**	<1	<50	<1	**2**	**2**	<5	**13**	**204**	<2	<5	**6**	**130**	<0.1	-	-	-	-	-	-	-	-	-	-	-
T15-08 (BH3)	1/02/2018	Target 15 - former workshop area	0.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	**160**	<1	<50	<1	**17**	**21**	**21**	**62**	**753**	**7**	<5	**85**	**74**	**0.2**	-	-	-	-	-	-	-	-	-	-	-
SV1	28/05/2018	Stockpile A Validation - southern end of footprint	-		<10	<50	**150**	<100	**150**	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SV2	28/05/2018	Stockpile A Validation - northern end of footprint	-		<10	<50	**240**	<100	**240**	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SV3	28/05/2018	*Stockpile B Validation - southern end of footprint*	-		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SV4	28/05/2018	*Stockpile B Validation - southern end of footprint*	-		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SV5	28/05/2018	*Stockpile B Validation - middle of footprint*	-		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SV6	28/05/2018	*Stockpile B Validation - northern end of footprint*	-		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T14-03-V01	28/05/2018	Target 14 Validation - base of T14-03	0.60		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	**40**	<1	<50	<1	**6**	**3**	<5	**8**	**54**	**4**	<5	**24**	**9**	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP10V-01	*30/05/2018*	*TP10 Validation - base*	*0.80*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-02	30/05/2018	TP10 Validation - base	0.80		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-03	30/05/2018	TP10 Validation - base	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-04	30/05/2018	TP10 Validation - base	0.60		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-05	*30/05/2018*	*TP10 Validation - wall*	*0.70*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-06	30/05/2018	TP10 Validation - wall	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-07	30/05/2018	TP10 Validation - wall	0.60		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-08	*30/05/2018*	*TP10 Validation - wall*	*0.70*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-09	*30/05/2018*	*TP10 Validation - base*	*0.70*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-10	*30/05/2018*	*TP10 Validation - base*	*0.70*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-11	*30/05/2018*	*TP10 Validation - base*	*0.70*		*<10*	*<50*	***120***	*<100*	***120***	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-12	*30/05/2018*	*TP10 Validation - base*	*0.80*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-13	*30/05/2018*	*TP10 Validation - base*	*0.70*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-14	*30/05/2018*	*TP10 Validation - base*	*0.80*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-15	*30/05/2018*	*TP10 Validation - base*	*0.70*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-16	*30/05/2018*	*TP10 Validation - wall*	*0.70*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-17	*30/05/2018*	*TP10 Validation - wall*	*0.70*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-18	*30/05/2018*	*TP10 Validation - wall*	*0.70*		*<10*	***110***	***600***	*<100*	***710***	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-19	31/05/2018	TP10 Validation - wall	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-20	31/05/2018	TP10 Validation - wall	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10V-21	31/05/2018	TP10 Validation - wall	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fill 1	31/05/2018	ACM Delineation Trenches - west end at "Jenny's"	0-0.5		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	**120**	<1	<50	<1	**8**	**9**	**27**	**141**	**276**	**11**	<5	**25**	**184**	**1.1**	-	-	-	-	-	-	-	-	-	-	No
Fill 2	31/05/2018	ACM Delineation Trenches - small pit adjacent to building	0-0.5		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	**310**	<1	<50	<1	**11**	**7**	**26**	**203**	**250**	**7**	<5	**26**	**630**	**0.8**	-	-	-	-	-	-	-	-	-	-	No
Fill 3	31/05/2018	ACM Delineation Trenches - stockpile adjacent to trench A	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	**100**	<1	<50	<1	**4**	**4**	**10**	**38**	**243**	**6**	<5	**11**	**70**	**0.2**	-	-	-	-	-	-	-	-	-	-	No
Fill 4	*31/05/2018*	*ACM Delineation Trenches - stockpile adjacent to trench B*	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*<5*	***120***	*<1*	*<50*	*<1*	***8***	***8***	***40***	***127***	***409***	***10***	*<5*	***25***	***290***	***2.8***	-	-	-	-	-	-	-	-	-	-	*No*
Fill 5	*31/05/2018*	*ACM Delineation Trenches - stockpile from trench C*	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*<5*	***60***	*<1*	*<50*	*<1*	***6***	***8***	***37***	***53***	***303***	***8***	*<5*	***32***	***83***	***0.2***	-	-	-	-	-	-	-	-	-	-	*No*
Fill 6	*31/05/2018*	*ACM Delineation Trenches - stockpile from trench C*	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*<5*	***130***	*<1*	*<50*	*<1*	***8***	***7***	***36***	***234***	***359***	***8***	*<5*	***31***	***275***	***0.4***	-	-	-	-	-	-	-	-	-	-	*No*
Fill 7	*31/05/2018*	*ACM Delineation Trenches - stockpile from trench D*	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*<5*	***80***	*<1*	*<50*	*<1*	***7***	***6***	***28***	***76***	***225***	***8***	*<5*	***23***	***188***	*<0.1*	-	-	-	-	-	-	-	-	-	-	*No*
Fill 8	*31/05/2018*	*ACM Delineation Trenches- stockpile from trench D*	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*<5*	***60***	*<1*	*<50*	*<1*	***7***	***5***	***16***	***68***	***157***	***6***	*<5*	***28***	***82***	*<0.1*	-	-	-	-	-	-	-	-	-	-	*No*
Trench 1a	*21/06/2018*	*Trench 1 - eastern centre of Property*	*0.60*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 1b	*21/06/2018*	*Trench 1 - eastern centre of Property*	*0.50*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 2a	*21/06/2018*	*Trench 2 - centre of Property*	*0.70*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 3a	21/06/2018	Trench 3 - western centre of Property	0.80		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 3b	21/06/2018	Trench 3 - western centre of Property	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 3c	21/06/2018	Trench 3 - western centre of Property	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 4a	21/06/2018	Trench 4 - western centre of Property	0.70		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trench 4b	21/06/2018	Trench 4 - western centre of Property	0.60		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW1 0.5-1m	5/07/2018	Groundwater well	0.5-1.0		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW1 2.5-3m	5/07/2018	Groundwater well	2.5-3.0		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW1 5-5.5m	5/07/2018	Groundwater well	5-5.5		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW1 7.5-8m	5/07/2018	Groundwater well	7.5-8.0		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW1 10.5-11m	5/07/2018	Groundwater well	10.5-11.0		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TR5-01	*12/09/2018*	*Trench 5 - parallel to southern fence line*	*0.20*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TR5-02	*12/09/2018*	*Trench 5 - parallel to southern fence line*	*0.30*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TR5-03	*12/09/2018*	*Trench 5 - parallel to southern fence line*	*0.50*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TR5-04	*12/09/2018*	*Trench 5 - parallel to southern fence line*	*0.70*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TR5-05	*12/09/2018*	*Trench 5 - parallel to southern fence line*	*0.90*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TR6-01	*12/09/2018*	*Trench 6 - between AST remedial excavation and eastern fence*	*0.30*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TR6-02	*12/09/2018*	*Trench 6 - between AST remedial excavation and eastern fence*	*0.70*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TR6-03	*12/09/2018*	*Trench 6 - between AST remedial excavation and eastern fence*	*0.30*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TR6-04	*12/09/2018*	*Trench 6 - between AST remedial excavation and eastern fence*	*0.70*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TR6-05	*12/09/2018*	*Trench 6 - between AST remedial excavation and eastern fence*	*0.20*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TR6-06	*12/09/2018*	*Trench 6 - remedial excavation validation*	*0.50*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TR6-07	*12/09/2018*	*Trench 6 - remedial excavation validation*	*0.60*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TR6-08	*12/09/2018*	*Trench 6 - remedial excavation validation*	*0.60*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TR6-09	*12/09/2018*	*Trench 6 - remedial excavation validation*	*0.70*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TR6-10	*12/09/2018*	*Trench 6 - remedial excavation validation*	*0.70*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TR6-11	*12/09/2018*	*Trench 6 - remedial excavation validation*	*0.70*		*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SWP01	12/09/2018	Sewer Pipeline Trench - perpendicular to Church Street	1.35		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SWP02	12/09/2018	Sewer Pipeline Trench - perpendicular to Church Street	1.30		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

4193.005 - Oatlands DSI			Analyte Group	TRH					BTEXN					PAH			Phenols		Heavy Metals																	Organochlorine Pesticides								Herbicides			Asbestos
			Analyte	C6-C10 minus BTEX (F1)	>C10-C16 minus Naphthalene (F2)	>C16-C34 (F3)	>C34-C40 (F4)	Sum (>C10-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	Benzo(a)pyrene	Carcinogenic PAHs (as BaP TEQ)	Total PAHs	Pentachlorophenol	Phenol	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Vanadium	Zinc	Mercury	DDT + DDE + DDD	Aldrin + Dieldrin	Chlordane (sum)	Endosulfan (sum)	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	2,4,5-T	2,4-D	MCPA	Asbestos (presence / absence)
			ASC NEPM HIL/HSL D (commercial / industrial)	260-NL (sand) 250-NL (silt) 310-NL (clay)	NL (all soil types)				3 (sand) 4-10 (silt) 4-20 (clay)	NL (all soil types)	NL (all soil types)	NL (all soil types)	NL (all soil types)		40	4,000	660	240,000	3,000		500	300,000	900	3,600 Cr(VI)	4,000	240,000	1,500	60,000	6,000	10,000	400,000	730 (inorganic)	3,600	45	530	2,000	100	50	80	2,500	5,000	9,000	5,000	
			ASC NEPM HIL/ HSL C (recreational)	**NL (all soil types)**	**NL (all soil types)**				**NL (all soil types)**	**NL (all soil types)**	**NL (all soil types)**	**NL (all soil types)**	**NL (all soil types)**		**3**	**300**	**120**	**40,000**	**300**		**90**	**20,000**	**90**	**300 Cr(VI)**	**300**	**17,000**	**600**	**19,000**	**1,200**	**700**	**30,000**	**80 (inorganic)**	**400**	**10**	**70**	**340**	**20**	**10**	**10**	**400**	**800**	**1,300**	**800**	
			ASC NEPM HIL/HSL A (residential with garden / accessible soil)	45-200 (sand) 40-190 (silt) 50-290 (clay)	110-NL (sand) 230-NL (silt) 280-NL (clay)				0.5 (sand) 0.6-2 (silt) 0.7-3 (clay)	160-540 (sand) 390-NL (silt) 480-NL (clay)	55-NL (sand) NL (silt) NL (clay)	40-170 (sand) 95-NL (silt) 110-NL (clay)	3-NL (sand) 4-NL (silt) 5-NL (clay)		3	300	100	3,000	100		60	4,500	20	100 Cr(VI)	100	6,000	300	3,800	400	200	7,400	40 (inorganic)	240	6	50	270	10	6	10	300	600	900	600	
			ASC NEPM EIL/ESL (commercial / industrial)	215 (coarse / fine)	170 (coarse / fine)	1,700 (coarse) 2,500 (fine)	3,300 (coarse) 6,600 (fine)		75 (coarse) 95 (fine)	135 (coarse / fine)	165 (coarse) 185 (fine)	180 (coarse) 95 (fine)	370	1.4 (coarse/ fine)					160					310 Cr(III)		140^	1,800*		55^			ACL: 280^ EIL: 380		640 (DDT)											
			ASC NEPM EIL/ESL urban residential / public open space)	**180 (coarse / fine)**	**120 (coarse / fine)**	**300 (coarse) 1,300 (fine)**	**2,800 (coarse) 5,600 (fine)**		**50 (coarse) 65 (fine)**	**85 (coarse) 105 (fine)**	**70 (coarse) 125 (fine)**	**105 (coarse) 45 (fine)**	**170**	**0.7 (coarse/ fine)**					**100**					**190 Cr(III)**		**95^**	**1,100***		**30^**			**ACL: 180^ EIL: 280**		**180 (DDT)**											
SWP03	12/09/2018	Sewer Pipeline Trench - perpendicular to Church Street	1.30	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	**30**	<1	<50	<1	**2**	<2	<5	**8**	**69**	**2**	<5	**5**	**20**	<0.1	-	-	-	-	-	-	-	-	-	-	-
SWP04	12/09/2018	Sewer Pipeline Trench - perpendicular to Church Street	1.30	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	**80**	<1	<50	<1	**12**	**3**	**5**	**28**	**23**	**4**	<5	**23**	**11**	<0.1	-	-	-	-	-	-	-	-	-	-	-
SWP05	12/09/2018	Sewer Pipeline Trench - perpendicular to Church Street	1.30	<10	<50	**280**	<100	**280**	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	**40**	<1	<50	<1	**5**	**5**	**13**	**13**	**132**	**6**	<5	**16**	**23**	<0.1	-	-	-	-	-	-	-	-	-	-	-
TP17-02	1/11/2018	Additional grid location - old workshop	0.50	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	-	-	-	-	-	<5	**50**	<1	<50	<1	**7**	**4**	**9**	**30**	**29**	**5**	<5	**12**	**55**	**0.1**	-	-	-	-	-	-	-	-	-	-	-
TP18-01	*1/11/2018*	*Additional grid location - residential lots*	*0.10*	*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	*<5*	***50***	*<1*	*<50*	*<1*	***13***	***17***	***70***	*<5*	***468***	***23***	*<5*	***57***	***30***	*<0.1*	-	-	-	-	-	-	-	-	-	-	-
TP18-02	*1/11/2018*	*Additional grid location - residential lots*	*0.40*	*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	*<5*	***50***	*<1*	*<50*	*<1*	***6***	***6***	***17***	***8***	***182***	***7***	*<5*	***19***	***22***	*<0.1*	-	-	-	-	-	-	-	-	-	-	-
TP19-01	*1/11/2018*	*Additional grid location - residential lots*	*0.10*	*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	*<5*	***20***	*<1*	*<50*	*<1*	***8***	***15***	***76***	*<5*	***502***	***21***	*<5*	***51***	***32***	*<0.1*	-	-	-	-	-	-	-	-	-	-	-
TP19-02	*1/11/2018*	*Additional grid location - residential lots*	*0.30*	*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	*<5*	***60***	*<1*	*<50*	*<1*	***8***	***5***	***21***	***24***	***282***	***9***	*<5*	***22***	***30***	*<0.1*	-	-	-	-	-	-	-	-	-	-	-
L2-VS	*1/11/2018*	*Stockpile validation - small L2 stockpile from Trench 6*	-	*<10*	*<50*	***200***	*<100*	***200***	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	*<5*	***50***	*<1*	*<50*	*<1*	***6***	***9***	***33***	***22***	***251***	***9***	*<5*	***39***	***77***	*<0.1*	-	-	-	-	-	-	-	-	-	-	-
L1-V1	*1/11/2018*	*Stockpile validation - large L1 stockpile NE of large hydrocarbon*	-	*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L1-V2	*1/11/2018*	*Stockpile validation - large L1 stockpile NE of large hydrocarbon*	-	*<10*	*<50*	*<100*	*<100*	*<50*	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L1-V3	*1/11/2018*	*Stockpile validation - large L1 stockpile NE of large hydrocarbon*	-	*<10*	*<50*	***170***	*<100*	***170***	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L3-V1	*1/11/2018*	*Stockpile validation - L3 stockpile bioremediated to L1*	-	*<10*	*<50*	***960***	***180***	***1140***	*<0.2*	*<0.5*	*<0.5*	*<0.5*	*<1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR01	18/12/2018	Metals remediation excavation validation	0.20	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	**30**	<1	<50	<1	<2	<2	<5	<5	**40**	<2	<5	<5	<5	<0.1	-	-	-	-	-	-	-	-	-	-	-
MR02	18/12/2018	Metals remediation excavation validation	0.20	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	**30**	<1	<50	<1	<2	<2	<5	<5	**33**	<2	<5	<5	<5	<0.1	-	-	-	-	-	-	-	-	-	-	-
MR03	18/12/2018	Metals remediation excavation validation	0.30	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	**50**	<1	<50	<1	**3**	<2	<5	**34**	**82**	**2**	<5	**7**	**20**	**0.4**	-	-	-	-	-	-	-	-	-	-	-
MR04	18/12/2018	Metals remediation excavation validation	0.20	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	**60**	<1	<50	<1	**2**	<2	**20**	**20**	**48**	**5**	<5	<5	**14**	**0.2**	-	-	-	-	-	-	-	-	-	-	-
MR05	18/12/2018	Metals remediation excavation validation	0.50	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	**80**	<1	<50	<1	**5**	**6**	**22**	**129**	**273**	**8**	<5	**18**	**110**	**0.3**	-	-	-	-	-	-	-	-	-	-	-
MR06	18/12/2018	Metals remediation excavation validation	0.30	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	**30**	<1	<50	<1	<2	<2	<5	<5	**29**	<2	<5	<5	<5	<0.1	-	-	-	-	-	-	-	-	-	-	-
MR07	18/12/2018	Metals remediation excavation validation	0.50	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	**70**	<1	<50	<1	**4**	<2	**14**	**134**	**71**	**2**	<5	**7**	**49**	<0.1	-	-	-	-	-	-	-	-	-	-	-
MR08	18/12/2018	Metals remediation excavation validation (in trench)	1.10	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	**20**	<1	<50	<1	**5**	**2**	<5	<5	**20**	**3**	<5	**8**	**5**	<0.1	-	-	-	-	-	-	-	-	-	-	-
MR09	18/12/2018	Metals remediation excavation validation	0.80	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	**40**	<1	<50	<1	**8**	**8**	<5	**8**	**109**	**9**	<5	**14**	**41**	<0.1	-	-	-	-	-	-	-	-	-	-	-
MR10	18/12/2018	Metals remediation excavation validation (in trench)	0.20	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	**70**	<1	<50	<1	**4**	**4**	**8**	**81**	**204**	**5**	<5	**8**	**66**	**0.3**	-	-	-	-	-	-	-	-	-	-	-
MR11	18/12/2018	Metals remediation excavation validation	0.30	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	**100**	<1	<50	<1	**4**	**4**	**10**	**24**	**153**	**4**	<5	**12**	**19**	**0.3**	-	-	-	-	-	-	-	-	-	-	-
MR12	18/12/2018	Metals remediation excavation validation (in trench)	0.40	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	**40**	<1	<50	<1	**2**	**2**	<5	**16**	**254**	**2**	<5	**6**	**28**	**0.1**	-	-	-	-	-	-	-	-	-	-	-
MR13	18/12/2018	Metals remediation excavation validation	0.40	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	**90**	<1	<50	<1	**4**	**4**	**9**	**69**	**306**	**4**	<5	**10**	**37**	**1.1**	-	-	-	-	-	-	-	-	-	-	-
MR14	18/12/2018	Metals remediation excavation validation (in trench)	0.50	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<1.2	<0.5	-	-	<5	**60**	<1	<50	<1	**5**	**6**	**28**	**108**	**240**	**6**	<5	**17**	**82**	**0.8**	-	-	-	-	-	-	-	-	-	-	-
OPbVal01	14/05/2019	Footprint validation of metals contaminated waste soil stockpiles	0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	**70**	<1	<50	<1	**20**	**13**	**61**	**38**	**994**	**29**	<5	**30**	**809**	<0.1	-	-	-	-	-	-	-	-	-	-	-
OPbVal02	14/05/2019	Footprint validation of metals contaminated waste soil stockpiles	0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	**50**	<1	<50	<1	**10**	**11**	**55**	**28**	**295**	**15**	<5	**43**	**105**	<0.1	-	-	-	-	-	-	-	-	-	-	-
OPbVal03	14/05/2019	Footprint validation of metals contaminated waste soil stockpiles	0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	**60**	<1	<50	<1	**9**	**13**	**36**	**22**	**376**	**16**	<5	**25**	**104**	<0.1	-	-	-	-	-	-	-	-	-	-	-
OPbVal04	14/05/2019	Footprint validation of metals contaminated waste soil stockpiles	0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	**80**	<1	<50	<1	**7**	**17**	**40**	**74**	**428**	**10**	<5	**30**	**340**	**0.2**	-	-	-	-	-	-	-	-	-	-	-
OPbVal05	14/05/2019	Footprint validation of metals contaminated waste soil stockpiles	0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	**70**	<1	<50	<1	**11**	**12**	**52**	**272**	**324**	**16**	<5	**34**	**131**	**0.2**	-	-	-	-	-	-	-	-	-	-	-
Summary Statistics			**Number of Data Points**	162	162	162	162	162	162	162	162	162	176	105	105	105	54	54	117	117	117	117	117	117	117	117	129	117	117	117	117	117	117	8	8	8	8	8	8	8	8	8	8	8
			Number of Detects	0	5	18	3	18	0	0	0	0	0	0	2	2	0	0	3	117	3	0	1	112	106	87	108	117	111	0	110	114	36	0	0	0	0	0	0	0	0	1	0	0
			Minimum	<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	<1.2	<0.5	<2	<0.5	<5	10	<1	<50	<1	<2	<2	<5	<5	20	<2	<5	<5	<5	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.02	<0.02	<0.02	no
			Maximum	<10	430	960	160	1140	<0.2	<0.5	<0.5	<0.5	<1	<0.5	1.2	1.5	<2	<0.5	31	1320	4	<50	2	30	21	116	371	1140	29	<5	85	809	2.8	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	0.04	<0.02	<0.02	no
			Average (<LOR replaced with LOR; only includes data in Park areas)	nc	50	114	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	72	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc

Legend:

222	value equals or exceeds at least one of the ecological criteria
222	value equals or exceeds Zn ACL and calculated EIL
	human health criteria
	ecological criteria
	indicates silica gel clean-up results
222	**results shown in italics represent soil samples taken within the areas which will be built upon (roading, carpark, swimming pool building, etc.) and are not assessable against recreational / open space criteria**
222	bold value indicates result is > LOR
222	guideline value is the most conservative ACL - based on the lowest clay content (% clay)
222	greyed out samples represent soils that were removed during subsequent round of remedial excavation
*	guideline value is the generic ACL
^	guideline value is the most conservative ACL - calculated from three classification samples:
	Copper ACL - calculated to be 95 mg/kg - 190 mg/kg (urban residential and public open space) and 140 mg/kg - 280 mg/kg (commercial / industrial)
	Nickel ACL - calculated to be 30 mg/kg - 170 mg/kg (urban residential and public open space) and 55 mg/kg - 290 mg/kg (commercial / industrial)
	Zinc ACL - calculated to be 180 mg/kg - 400 mg/kg (urban residential and public open space) and 280 mg/kg - 620 mg/kg (commercial / industrial)
<20	less than value indicates result is less than the LOR
ACL	Added Contaminant Limit
LOR	Laboratory Limit of Reporting
NL	Not Limiting
HIL / HSL	Health Investigation Level / Health Screening Level
EIL / ESL	Ecological Investigation Level / Ecological Screening Level
	Grid locations with "resampled" were resampled due to ice-melt preventing analysis of the original samples

References:

ASC NEPM — National Environment Protection (Assessment of Site Contamination) Measure 1999, amended 2013 (ASC NEPM, 2013)

SUMMARY RESULTS - WATER

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				Analyte Grouping	TRH					BTEXN					PAH			Phenols		Heavy Metals														
				Analyte	C6-C10 minus BTEX (F1)	>C10-C16 minus Naphthalene (F2)	>C16-C34 (F3)	>C34-C40 (F4)	Sum (>C10-C40)	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naphthalene	Benzo(a)pyrene	Carcinogenic PAHs (as BaP TEQ)	Total PAHs	Pentachlorophenol	Phenol	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium III (tested)	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Vanadium	Zinc	Mercury
				ANZECC fresh water TV (95% species protection)						950	ID	ID	350 (o-xylene) ID (m-xylene) 200 (p-xylene)	16	ID			10	320	0.024 As(III) 0.013 As(V)		ID	0.37	0.0002	ID Cr(III) 0.001 Cr(V)	ID	0.0014	0.0034	1.9	0.011	0.011	ID	0.008	0.0006 (inorganic)
				ANZECC fresh water TV (80% species protection)						2,000	ID	ID	640 (o-xylene) ID (m-xylene) 340 (p-xylene)	85	ID			27	1,200	0.36 As(III) 0.14 As(V)		ID	1.3	0.0008	ID Cr(III) 0.04 Cr(V)	ID	0.0025	0.0094	3.6	0.017	0.034	ID	0.031	0.0054 (inorganic)
				ADWG (health)						1	800	300	600		0.01		0.01	10		0.01	2	0.06	4	0.002	0.05 Cr(V)		2	0.01	0.5	0.02	0.01			0.001
				ADWG (aesthetic)							25	3	20														1		0.1			3		
				ASC NEPM Groundwater HSLs (2m to <4m depth)	1000 (sand) 6000 (silt) NL (clay)	1000 (sand) NL (silt) NL (clay)				800 (sand) 4000 (silt) 5000 (clay)	NL (sand) NL (silt) NL (clay)	NL (sand) NL (silt) NL (clay)	NL (sand) NL (silt) NL (clay)	NL (sand) NL (silt) NL (clay)																		
Sample ID	**Date Sampled**	**Site**	**Depth (m)**	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
TP6-water	20/02/2018	TP6 - accumulated rainwater	0.50		<20	<100	**170**	<100	**170**	<1	<2	<2	<2	<5	<0.5	<0.5	<0.5	<2.0	<1.0	**0.001**	**0.131**	<0.001	<0.05	**0.0001**	**0.011**	**0.012**	**0.046**	**0.020**	**0.363**	**0.016**	<0.01	**0.04**	**0.095**	<0.0001
T3-rainwater	20/02/2018	Target 3 - accumulated rainwater in UPSS2 remedial excavation	1.60		<20	<100	**860**	<100	**860**	<1	<2	<2	<2	<5	<0.5	<0.5	<0.5	<2.0	<1.0	**0.002**	**0.140**	**0.001**	**0.07**	**0.0003**	**0.011**	**0.021**	**0.055**	**0.035**	**0.537**	**0.019**	<0.01	**0.03**	**0.258**	<0.0001
Tank Water	*2/02/2018*	*Target 3 - UPSS2 waste water in the tank*	*--*	*Water removed from site*	***200***	***1980***	***1720***	*<100*	***3730***	***3***	***13***	***12***	***96***	***32***	*<0.5*	*<0.5*	***7.5***	*<2.0*	*<1.0*	***0.002***	***0.121***	***0.001***	*<0.05*	***0.0004***	***0.011***	***0.028***	***0.088***	***0.070***	***1.160***	***0.020***	*<0.01*	***0.05***	***0.442***	*<0.0001*
MW1	*5/07/2018*	*Groundwater well - grab sample*	*13-14*	*Note a best practice sample and may have been contaminated by drilling activities*	*<20*	***190***	***1560***	***240***	***1990***	*<1*	*<2*	*<2*	*<2*	*<5*													***0.627***						
MW1A	12/07/2018	Groundwater - low flow sample	6.1-6.4		<20	<100	<100	<100	<100	<1	<2	<2	<2	<5	<0.5	<0.5	<0.5	<2.0	<1.0	<0.001				**0.0009**	<0.001		**0.005**	<0.001		**0.048**			**0.104**	<0.0001
MW1B	12/07/2018	Groundwater - low flow sample	10.40		<20	<100	<100	<100	<100	<1	<2	<2	<2	<5	<0.5	<0.5	<0.5	<2.0	<1.0	<0.001				**0.0010**	<0.001		**0.001**	<0.001		**0.033**			**0.058**	<0.0001
Summary Statistics				**Number of Data Points**	6	6	6	6	6	6	6	6	6	6																				
				Number of Detects	1	1	3	0	3	1	1	1	1	1																				
				Minimum	10	50	170	50	170	0.5	1.0	1.0	1.0	2.5																				
				Maximum	200	1980	1720	50	3730	3	13	12	96	32																				

Legend:

222	value exceeds ADWG (health) criteron
222	value exceeds ADWG (aesthetic) criterion
222	value equals or exceeds ANZECC 95% species protection fresh water
	human health criteria
	ecological criteria
<20	less than value indicates results is less than the LOR
LOR	Laboratory Limit of Reporting
ID	Insufficient data to derive a reliable trigger value
NL	Not Limiting
TV	Trigger Value

References:

ANZECC	National Water Quality Management Strategy – Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000)
ADWG	Australian Drinking Water Guidelines 6 2011, updated October 2017 (ADWG, 2017)
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999, amended 2013 (ASC NEPM, 2013)

SUMMARY RESULTS - SOIL For DISPOSAL

4193.005 - Oatlands DSI

Analyte Group				TRH					BTEXN					PAH			Phenols		Heavy Metals																				Organochlorine Pesticides								Cyanide	Fluoride	PCB	Asbestos
Analyte				C6-C10 minus BTEX (F1)	>C10-C16 minus Naphthalene (F2)	>C16-C34 (F3)	>C34-C40 (F4)	Sum (>C10-C40)	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naphthalene	Benzo(a)pyrene	Carcinogenic PAHs (as BaP TEQ)	Total PAHs	Pentachlorophenol	Phenol	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Hexavalent Chromium	Cobalt	Copper	Lead	Manganese	Molybdenum	Nickel	Selenium	Silver	Tin	Vanadium	Zinc	Mercury	DDT + DDE + DDD	Aldrin + Dieldrin	Chlordane (sum)	Endosulfan (sum)	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	Total Cyanide	Fluoride	Total Polychlorinated Biphenyls	Asbestos (presence / absence)
	TAS EPA - Level 1 (fill material)			65 (C6-C9)				1,000 (C10-C36)	1	1	3	14		0.08		20		25	20	300	2		3	50	1	100	100	300	500	10	60	10	10	50	200	1	2	2							32	300	2	
	TAS EPA - Level 2 (low level contaminated soil)			650 (C6-C9)				5,000 (C10-C36)	5	100	100	180		2		40		500	200	3,000	40		40	500	200	200	2,000	1,200	5,000	1,000	600	50	180	500	14,000	30	200	20							1,000	3,000	20	
	TAS EPA - Level 3 (contaminated soil)			1,000 (C6-C9)				10,000 (C10-C36)	50	1,000	1,080	1,800		20		200		2,000	750	30,000	400		400	5,000	2,000	1,000	7,500	3,000	25,000	4,000	3,000	200	720	900	50,000	110	1,000	50							2,500	10,000	50	
Sample ID	**Date Sampled**	**Site**	**Depth (m)**	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	g/kg
DT1	20/02/2018	Dog Trailer #1 - for disposal	-		<10	**830**	**1180**	<100	**2010**	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5																	**40**															
DT2	20/02/2018	Dog Trailer #2 - for disposal	-		<10	**1560**	**2340**	<100	**3900**	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5																	**94**															
A1	20/02/2018	Target T1 Stockpile - north of excavation	-		<10	<50	**240**	<100	**240**	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5																	**49**															
A3-1	20/02/2018	Target T1 Stockpile - west of excavation	-		<10	**140**	**640**	**210**	**990**	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5																	**118**															
A3-2	20/02/2018	Target T1 Stockpile - west of excavation	-		<10	**70**	**520**	**220**	**810**	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5																	**288**															
A4	20/02/2018	Target T1 Stockpile - west of excavation	-		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5																	**39**															
B1	20/02/2018	Target T1 Stockpile - suspected contaminated	-		<10	**450**	**690**	<100	**1140**	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	**0.5**	<2	<0.5																	**58**															
B5	20/02/2018	Target T1 Stockpile - suspected contaminated	-		<10	**90**	**160**	<100	**250**	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5																	**21**															
B12-1	20/02/2018	Target T1 Stockpile - suspected contaminated	-		<10	**580**	**790**	**100**	**1470**	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	**0.6**	<2	<0.5																	**170**															
B12-2	20/02/2018	Target T1 Stockpile - suspected contaminated	-		<10	**380**	**470**	<100	**850**	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5																	**13**															
B12-3	20/02/2018	Target T1 Stockpile - suspected contaminated	-		<10	**580**	**1070**	<100	**1650**	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5																	**84**															
B16	20/02/2018	Target T1 Stockpile - suspected contaminated	-		<10	**1300**	**1740**	<100	**3040**	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5																	**107**															
B20	20/02/2018	Target T1 Stockpile - suspected contaminated	-		<10	**1430**	**1710**	<100	**3140**	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5																	**64**															
Backfill sand	2/02/2018	Stockpile - backfill sand	-		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5																																
T3-Stockpile 1	2/02/2018	Stockpile	-		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5																																
T3-Stockpile 2	2/02/2018	Stockpile	-		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5																																
T3-Waste soil	2/02/2018	Excavated sand and sandstone	-		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5																																
SP-MET	28/05/2018	Target 14 - metals impacted stockpile	-																	<5	**170**	<1	<50	<1	**7**		**5**	**18**	**265**	**207**		**6**	<5			**15**	**327**	**1.3**												No
ACM-SP1	31/05/2018	ACM impacted stockpile (waste soils removed from where ACM1 and ACM2 were located)	-																	<5	**180**	<1	<50	<1	**7**		**8**	**30**	**265**	**278**		**9**	<5			**24**	**174**	**1.3**												No
C1	1/06/2018	Stockpiles from TP10 & AST 1	-		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1																																				
C2	1/06/2018	Stockpiles from TP10 & AST 1	-		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1																																				
C3	1/06/2018	Stockpiles from TP10 & AST 1	-		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1																																				
C4	1/06/2018	Stockpiles from TP10 & AST 1	-		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1																																				
D1	1/06/2018	Stockpiles from TP10 & AST 1	-		<10	<50	**110**	<100	**110**	<0.2	<0.5	<0.5	<0.5	<1	**0.08**	**1.2**	<0.5	<2	<0.5	<5	**80**	<1		<1	**14**	<0.5	**8**	**21**	**82**	**263**	<2	**10**	<5	<2	**5**		**114**	**0.4**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1	**60**	<0.1	
D2	1/06/2018	Stockpiles from TP10 & AST 1	-		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	**0.06**	**1.2**	<0.5	<2	<0.5	<5	**140**	<1		<1	**5**	<0.5	**5**	**20**	**268**	**265**	<2	**8**	<5	<2	**17**		**210**	**1.2**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	**1**	**40**	<0.1	
D3	1/06/2018	Stockpiles from TP10 & AST 1	-		<10	<50	**770**	**160**	**930**	<0.2	<0.5	<0.5	<0.5	<1	**0.10**	**1.2**	<0.5	<2	<0.5	<5	**50**	<1		<1	**5**	<0.5	**4**	**12**	**30**	**193**	<2	**5**	<5	<2	**6**		**77**	**0.3**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1	<40	<0.1	
D4	1/06/2018	Stockpiles from TP10 & AST 1	-		<10	<50	**940**	**210**	**1150**	<0.2	<0.5	<0.5	<0.5	<1	<0.05	**1.2**	<0.5	<2	<0.5	<5	**50**	<1		<1	**6**	<0.5	**5**	**13**	**28**	**249**	<2	**8**	<5	<2	<5		**41**	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1	**50**	<0.1	
D5	1/06/2018	Stockpiles from TP10 & AST 1	-		<10	<50	**380**	<100	**380**	<0.2	<0.5	<0.5	<0.5	<1	<0.05	**1.2**	<0.5	<2	<0.5	<5	**60**	<1		<1	**5**	<0.5	**5**	**14**	**17**	**172**	<2	**7**	<5	<2	<5		**37**	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1	**50**	<0.1	
E1	1/06/2018	Stockpiles from TP10 & AST 1	-		<10	**330**	**7090**	**1490**	**8910**	<0.2	<0.5	<0.5	<0.5	<1																																				
TR6-SP1	12/09/2018	Trench 6 - stockpile	-		<10	**550**	**610**	<100	**1160**	<0.2	<0.5	<0.5	<0.5	<1						<5	**60**	<1	<50	<1	**6**		**7**	**26**	**30**	**197**		**8**	<5			**20**	**58**	**0.1**												
L3-12.9.18	12/09/2018	Level 3 Stockpiles E - bioremediation progress sampling	-		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1						<5	**40**	<1	<50	<1	**4**		**5**	**8**	**7**	**110**		**4**	<5			**12**	**22**	<0.1												
MS01	18/12/2018	Stockpile from metals remediation excavation	-											<0.5	<0.5	**1.2**	<0.5			<5	**260**	<1	<50	<1	**7**		**7**	**46**	**420**	**342**		**11**	<5			**14**	**198**	**0.6**												
MS02	18/12/2018	Stockpile from metals remediation excavation	-											<0.5	<0.5	**1.2**	<0.5			**6**	**660**	<1	<50	**3**	**16**		**8**	**102**	**2550**	**342**		**19**	<5			**22**	**1020**	<0.1												
MS03	18/12/2018	Stockpile from metals remediation excavation	-											<0.5	<0.5	**1.2**	<0.5			**5**	**760**	<1	<50	**4**	**23**		**8**	**331**	**1630**	**753**		**19**	<5			**34**	**3020**	<0.1												
MS04	18/12/2018	Stockpile from metals remediation excavation	-											<0.5	<0.5	**1.2**	<0.5			<5	**300**	<1	<50	<1	**7**		**8**	**42**	**756**	**458**		**8**	<5			**17**	**406**	<0.1												

Legend:

222	value equals or exceeds Level 1 and meets Level 2 criteria
222	value equals or exceeds Level 2 and meets Level 3 criteria
222	bold value indicates result is > LOR
222	guideline value is less than the LOR
LOR	Laboratory Limit of Reporting
NL	Not Limiting

References:

TAS EPA Information Bulletin No. 105 - Classification and Management of Contaminated Soil for Disposal (EPA, 2018a)

Appendix T – Laboratory Certificates of Analysis

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1802453**	Page	: 1 of 32
Client	: **SEMF PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Outlands DSI	Date Samples Received	: 02-Feb-2018 12:25
Order number	: 4193.005	Date Analysis Commenced	: 05-Feb-2018
C-O-C number	: ----	Issue Date	: 20-Feb-2018 10:56
Sampler	: FIONA KESERUE-PONTE		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 47		
No. of samples analysed	: 40		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Franco Lentini		Sydney Organics, Smithfield, NSW
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nathan Webb	Asbestos Identifier	Newcastle - Inorganics, Mayfield West, NSW
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- pH analysis is done under non-stirring condition.
- EG005T:EM1802479_033 has been diluted prior to cadmium analysis due to sample matrix. LOR has beenr raised accordingly
- EP071SG-S: EM1802453_028 positive TRH SG clean up results have been confirmed by re-extraction and re-analysis
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	duplicate 2	NEPM 1	NEPM 2	NEPM 3	TP1-02
			Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802453-004	EM1802453-005	EM1802453-006	EM1802453-007	EM1802453-009
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	----	6.2	6.7	5.6	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	18.5	6.0	3.2	18.9	18.5
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	5	4	6	----
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	2.66	2.60	2.56	----
ED006: Exchangeable Cations on Alkaline Soils								
ø Exchangeable Calcium	----	0.2	meq/100g	----	11.6	2.1	----	----
ø Exchangeable Magnesium	----	0.2	meq/100g	----	3.7	0.9	----	----
ø Exchangeable Potassium	----	0.2	meq/100g	----	0.3	0.4	----	----
ø Exchangeable Sodium	----	0.2	meq/100g	----	0.3	<0.2	----	----
ø Cation Exchange Capacity	----	0.2	meq/100g	----	15.8	3.4	----	----
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	----	----	6.9	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	----	1.6	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	----	0.4	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	----	<0.1	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	----	9.0	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	<5
Barium	7440-39-3	10	mg/kg	20	----	----	----	50
Beryllium	7440-41-7	1	mg/kg	1	----	----	----	<1
Boron	7440-42-8	50	mg/kg	<50	----	----	----	<50
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	<1
Chromium	7440-47-3	2	mg/kg	11	----	----	----	8
Cobalt	7440-48-4	2	mg/kg	9	----	----	----	9
Copper	7440-50-8	5	mg/kg	6	----	----	----	42
Iron	7439-89-6	0.005	%	----	2.25	1.70	1.31	----
Lead	7439-92-1	5	mg/kg	9	----	----	----	17
Manganese	7439-96-5	5	mg/kg	39	----	----	----	359
Nickel	7440-02-0	2	mg/kg	10	----	----	----	17
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	<5
Vanadium	7440-62-2	5	mg/kg	30	----	----	----	30

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	duplicate 2	NEPM 1	NEPM 2	NEPM 3	TP1-02
				Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802453-004	EM1802453-005	EM1802453-006	EM1802453-007	EM1802453-009
					Result	Result	Result	Result	Result
EG005T: Total Metals by ICP-AES - Continued									
Zinc	7440-66-6	5	mg/kg		18	----	----	----	31
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	----	----	----	<0.1
EP004: Organic Matter									
Organic Matter	----	0.5	%		----	0.8	<0.5	2.4	----
Total Organic Carbon	----	0.5	%		----	<0.5	<0.5	1.4	----
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup									
>C10 - C16 Fraction	----	50	mg/kg		----	----	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg		----	----	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg		----	----	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	----	----	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	----	----	----	<50
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup									
C10 - C14 Fraction	----	50	mg/kg		----	----	----	----	<50
C15 - C28 Fraction	----	100	mg/kg		----	----	----	----	<100
C29 - C36 Fraction	----	100	mg/kg		----	----	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	----	----	----	<50
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	duplicate 2	NEPM 1	NEPM 2	NEPM 3	TP1-02
			Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802453-004	EM1802453-005	EM1802453-006	EM1802453-007	EM1802453-009
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	----	----	----	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	----	----	----	**1.2**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	<10
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	----	----	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	----	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**105**	----	----	----	**103**
2-Chlorophenol-D4	93951-73-6	0.5	%	**107**	----	----	----	**108**
2.4.6-Tribromophenol	118-79-6	0.5	%	**88.2**	----	----	----	**81.3**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	duplicate 2	NEPM 1	NEPM 2	NEPM 3	TP1-02
				Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802453-004	EM1802453-005	EM1802453-006	EM1802453-007	EM1802453-009
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**117**	----	----	----	**101**
Anthracene-d10	1719-06-8	0.5	%		**123**	----	----	----	**124**
4-Terphenyl-d14	1718-51-0	0.5	%		**124**	----	----	----	**124**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**70.2**	----	----	----	**74.2**
Toluene-D8	2037-26-5	0.2	%		**56.0**	----	----	----	**66.4**
4-Bromofluorobenzene	460-00-4	0.2	%		**91.2**	----	----	----	**89.2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP2-02	TP3-02	TP4-01	TP4-02	TP5-02
			Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802453-011	EM1802453-013	EM1802453-014	EM1802453-015	EM1802453-017
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	17.7	19.3	15.0	23.3	14.0
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	40	30	20	100	30
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	6	3	5	7	12
Cobalt	7440-48-4	2	mg/kg	5	<2	11	11	4
Copper	7440-50-8	5	mg/kg	24	<5	71	15	17
Lead	7439-92-1	5	mg/kg	13	7	8	102	14
Manganese	7439-96-5	5	mg/kg	193	22	355	446	94
Nickel	7440-02-0	2	mg/kg	8	2	17	6	5
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	19	<5	43	34	24
Zinc	7440-66-6	5	mg/kg	18	6	55	77	38
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup								
>C10 - C16 Fraction	----	50	mg/kg	----	----	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	----	----	----	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	----	----	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	----	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	----	<50	<50
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup								
C10 - C14 Fraction	----	50	mg/kg	----	----	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg	----	----	----	<100	<100
C29 - C36 Fraction	----	100	mg/kg	----	----	----	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	----	<50	<50
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP2-02	TP3-02	TP4-01	TP4-02	TP5-02
			Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802453-011	EM1802453-013	EM1802453-014	EM1802453-015	EM1802453-017
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP2-02	TP3-02	TP4-01	TP4-02	TP5-02
			Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802453-011	EM1802453-013	EM1802453-014	EM1802453-015	EM1802453-017
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**105**	**105**	**104**	**104**	**102**
2-Chlorophenol-D4	93951-73-6	0.5	%	**105**	**110**	**110**	**110**	**107**
2.4.6-Tribromophenol	118-79-6	0.5	%	**80.5**	**77.4**	**77.5**	**84.8**	**85.6**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**122**	**121**	**119**	**99.1**	**119**
Anthracene-d10	1719-06-8	0.5	%	**121**	**124**	**116**	**124**	**121**
4-Terphenyl-d14	1718-51-0	0.5	%	**122**	**121**	**122**	**126**	**122**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**75.0**	**75.2**	**70.0**	**66.3**	**74.1**
Toluene-D8	2037-26-5	0.2	%	**69.3**	**84.2**	**62.0**	**55.5**	**73.8**
4-Bromofluorobenzene	460-00-4	0.2	%	**95.8**	**102**	**87.9**	**82.4**	**93.3**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP6-01	TP7-01	TP7-02	DUPLICATE 1	TP8-01
			Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802453-018	EM1802453-020	EM1802453-021	EM1802453-022	EM1802453-023
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	9.6	15.1	22.0	25.8	5.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	20	20	60	70	20
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	5	30	4	5	5
Cobalt	7440-48-4	2	mg/kg	12	10	5	3	12
Copper	7440-50-8	5	mg/kg	72	69	22	14	76
Lead	7439-92-1	5	mg/kg	<5	125	24	41	<5
Manganese	7439-96-5	5	mg/kg	347	287	209	143	337
Nickel	7440-02-0	2	mg/kg	17	16	6	5	17
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	37	35	14	23	41
Zinc	7440-66-6	5	mg/kg	57	531	37	87	28
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup								
>C10 - C16 Fraction	----	50	mg/kg	----	----	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	----	----	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	----	----	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	<50	<50	----
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup								
C10 - C14 Fraction	----	50	mg/kg	----	----	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	----	----	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	----	----	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	<50	<50	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP6-01	TP7-01	TP7-02	DUPLICATE 1	TP8-01
			Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802453-018	EM1802453-020	EM1802453-021	EM1802453-022	EM1802453-023
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	----	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP6-01	TP7-01	TP7-02	DUPLICATE 1	TP8-01
			Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802453-018	EM1802453-020	EM1802453-021	EM1802453-022	EM1802453-023
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**106**	**102**	**102**	**101**	**103**
2-Chlorophenol-D4	93951-73-6	0.5	%	**106**	**107**	**107**	**108**	**109**
2.4.6-Tribromophenol	118-79-6	0.5	%	**88.2**	**93.7**	**90.0**	**91.8**	**83.2**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**125**	**120**	**120**	**119**	**121**
Anthracene-d10	1719-06-8	0.5	%	**124**	**119**	**121**	**122**	**120**
4-Terphenyl-d14	1718-51-0	0.5	%	**126**	**121**	**123**	**121**	**123**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**83.3**	**70.5**	**74.6**	**65.4**	**83.4**
Toluene-D8	2037-26-5	0.2	%	**81.9**	**67.6**	**67.2**	**73.6**	**88.4**
4-Bromofluorobenzene	460-00-4	0.2	%	**103**	**92.3**	**93.6**	**76.5**	**92.0**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP8-02	TP9-01	TP10-01	TP10-02	TP13-01
			Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802453-024	EM1802453-025	EM1802453-027	EM1802453-028	EM1802453-029
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	10.7	13.3	11.8	13.8	12.7
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	90	20	60	90	70
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	4	10	<2	6	5
Cobalt	7440-48-4	2	mg/kg	4	18	15	5	4
Copper	7440-50-8	5	mg/kg	17	74	33	16	15
Lead	7439-92-1	5	mg/kg	31	<5	7	55	41
Manganese	7439-96-5	5	mg/kg	415	550	316	262	223
Nickel	7440-02-0	2	mg/kg	6	24	<2	5	4
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	12	53	20	13	13
Zinc	7440-66-6	5	mg/kg	29	27	54	115	49
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.1	<0.1	<0.1	0.1	0.4
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup								
>C10 - C16 Fraction	----	50	mg/kg	<50	----	----	350	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	2110	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	300	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	2760	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	350	<50
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup								
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	180	<50
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	1620	<100
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	810	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	2610	<50
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP8-02	TP9-01	TP10-01	TP10-02	TP13-01
			Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802453-024	EM1802453-025	EM1802453-027	EM1802453-028	EM1802453-029
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	----	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	----	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	----	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	----	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	----	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	<50	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP8-02	TP9-01	TP10-01	TP10-02	TP13-01
			Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802453-024	EM1802453-025	EM1802453-027	EM1802453-028	EM1802453-029
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**106**	**94.9**	**112**	**96.7**	**110**
2-Chlorophenol-D4	93951-73-6	0.5	%	**105**	**86.0**	**101**	**90.7**	**110**
2.4.6-Tribromophenol	118-79-6	0.5	%	**88.8**	**68.7**	**65.0**	**82.2**	**73.3**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**110**	**101**	**102**	**108**	**105**
Anthracene-d10	1719-06-8	0.5	%	**124**	**85.0**	**81.7**	**103**	**91.2**
4-Terphenyl-d14	1718-51-0	0.5	%	**125**	**98.2**	**95.5**	**110**	**105**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**70.8**	**72.0**	**95.4**	**92.5**	**77.4**
Toluene-D8	2037-26-5	0.2	%	**79.1**	**58.9**	**95.0**	**87.3**	**75.5**
4-Bromofluorobenzene	460-00-4	0.2	%	**81.0**	**83.9**	**106**	**118**	**89.8**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP13-02	TP11-01	TP11-02	TP12-01	TP12-02
			Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802453-030	EM1802453-031	EM1802453-032	EM1802453-033	EM1802453-034
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	11.9	6.5	6.3	5.8	11.8
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	40	40	30	20	50
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	3	<2	<2	10	3
Cobalt	7440-48-4	2	mg/kg	3	<2	<2	11	2
Copper	7440-50-8	5	mg/kg	<5	<5	<5	63	6
Lead	7439-92-1	5	mg/kg	6	8	8	<5	15
Manganese	7439-96-5	5	mg/kg	105	58	38	278	86
Nickel	7440-02-0	2	mg/kg	3	<2	<2	17	2
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	8	<5	<5	39	6
Zinc	7440-66-6	5	mg/kg	8	26	24	30	29
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup								
>C10 - C16 Fraction	----	50	mg/kg	----	----	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg	----	----	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg	----	----	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	----	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	----	----	<50
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup								
C10 - C14 Fraction	----	50	mg/kg	----	----	----	----	<50
C15 - C28 Fraction	----	100	mg/kg	----	----	----	----	<100
C29 - C36 Fraction	----	100	mg/kg	----	----	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	----	----	<50
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP13-02	TP11-01	TP11-02	TP12-01	TP12-02
			Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802453-030	EM1802453-031	EM1802453-032	EM1802453-033	EM1802453-034
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP13-02	TP11-01	TP11-02	TP12-01	TP12-02
			Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802453-030	EM1802453-031	EM1802453-032	EM1802453-033	EM1802453-034
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**106**	**97.3**	**95.1**	**96.0**	**105**
2-Chlorophenol-D4	93951-73-6	0.5	%	**109**	**105**	**104**	**96.6**	**96.2**
2.4.6-Tribromophenol	118-79-6	0.5	%	**84.4**	**76.6**	**67.3**	**68.7**	**71.8**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**105**	**102**	**98.5**	**103**	**104**
Anthracene-d10	1719-06-8	0.5	%	**88.3**	**93.8**	**85.8**	**89.1**	**90.6**
4-Terphenyl-d14	1718-51-0	0.5	%	**104**	**107**	**97.1**	**99.2**	**96.5**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**85.1**	**75.7**	**85.4**	**77.1**	**75.0**
Toluene-D8	2037-26-5	0.2	%	**88.3**	**71.5**	**76.7**	**79.0**	**77.9**
4-Bromofluorobenzene	460-00-4	0.2	%	**94.5**	**81.1**	**89.7**	**106**	**106**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP12-03	TP16-01	TP16-02	TP14-01	TP15-01
			Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802453-035	EM1802453-036	EM1802453-037	EM1802453-038	EM1802453-039
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	15.2	13.9	15.4	20.1	9.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	31
Barium	7440-39-3	10	mg/kg	160	80	30	1320	240
Beryllium	7440-41-7	1	mg/kg	4	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<10	<1	<1	2	<1
Chromium	7440-47-3	2	mg/kg	12	4	4	22	12
Cobalt	7440-48-4	2	mg/kg	14	4	2	4	6
Copper	7440-50-8	5	mg/kg	6	18	5	116	55
Lead	7439-92-1	5	mg/kg	14	43	15	371	158
Manganese	7439-96-5	5	mg/kg	1140	165	55	688	484
Nickel	7440-02-0	2	mg/kg	6	5	4	7	12
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	64	13	9	11	19
Zinc	7440-66-6	5	mg/kg	8	104	14	675	244
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	0.1	<0.1	0.4	0.5
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP12-03	TP16-01	TP16-02	TP14-01	TP15-01
				Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802453-035	EM1802453-036	EM1802453-037	EM1802453-038	EM1802453-039
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup									
>C10 - C16 Fraction	----	50	mg/kg		----	----	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		----	----	----	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		----	----	----	<100	<100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP12-03	TP16-01	TP16-02	TP14-01	TP15-01
				Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802453-035	EM1802453-036	EM1802453-037	EM1802453-038	EM1802453-039
					Result	Result	Result	Result	Result
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup - Continued									
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	----	----	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	----	----	<50	<50
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup									
C10 - C14 Fraction	----	50	mg/kg		----	----	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg		----	----	----	<100	<100
C29 - C36 Fraction	----	100	mg/kg		----	----	----	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	----	----	<50	<50
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP12-03	TP16-01	TP16-02	TP14-01	TP15-01
			Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802453-035	EM1802453-036	EM1802453-037	EM1802453-038	EM1802453-039
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	----	----	----	----
2.4-DB	94-82-6	0.02	mg/kg	<0.02	----	----	----	----
Dicamba	1918-00-9	0.02	mg/kg	<0.02	----	----	----	----
Mecoprop	93-65-2	0.02	mg/kg	<0.02	----	----	----	----
MCPA	94-74-6	0.02	mg/kg	<0.02	----	----	----	----
2.4-DP	120-36-5	0.02	mg/kg	<0.02	----	----	----	----
2.4-D	94-75-7	0.02	mg/kg	<0.02	----	----	----	----
Triclopyr	55335-06-3	0.02	mg/kg	<0.02	----	----	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	----	----	----	----
2.4.5-T	93-76-5	0.02	mg/kg	<0.02	----	----	----	----
MCPB	94-81-5	0.02	mg/kg	<0.02	----	----	----	----
Picloram	1918-02-1	0.02	mg/kg	<0.02	----	----	----	----
Clopyralid	1702-17-6	0.02	mg/kg	<0.02	----	----	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP12-03	TP16-01	TP16-02	TP14-01	TP15-01
				Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802453-035	EM1802453-036	EM1802453-037	EM1802453-038	EM1802453-039
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		85.4	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		79.9	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		92.0	95.2	108	112	95.1
2-Chlorophenol-D4	93951-73-6	0.5	%		83.7	96.1	109	114	101
2.4.6-Tribromophenol	118-79-6	0.5	%		72.6	67.5	64.5	64.3	71.4
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		108	103	99.8	102	108
Anthracene-d10	1719-06-8	0.5	%		95.5	90.7	87.9	86.4	96.6
4-Terphenyl-d14	1718-51-0	0.5	%		102	100	99.3	97.4	99.0
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		75.0	73.6	81.2	72.7	78.8
Toluene-D8	2037-26-5	0.2	%		80.8	71.3	78.3	68.8	75.5
4-Bromofluorobenzene	460-00-4	0.2	%		86.2	103	88.2	91.4	103
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		69.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP15-02	triplicate 1	TP1-01	TP2-01	TP3-01
			Client sampling date / time	31-Jan-2018 00:00	06-Feb-2018 00:00	06-Feb-2018 00:00	06-Feb-2018 00:00	06-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802453-040	EM1802453-041	EM1802453-042	EM1802453-043	EM1802453-044
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	4.0	5.1	4.3	4.1	4.8
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	60	40	40	40	20
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	4	5	6	9	6
Cobalt	7440-48-4	2	mg/kg	4	7	8	11	13
Copper	7440-50-8	5	mg/kg	9	31	38	45	83
Lead	7439-92-1	5	mg/kg	27	6	7	<5	<5
Manganese	7439-96-5	5	mg/kg	79	313	322	308	370
Nickel	7440-02-0	2	mg/kg	4	11	14	17	20
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	9	24	23	38	53
Zinc	7440-66-6	5	mg/kg	38	19	30	31	26
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP15-02	triplicate 1	TP1-01	TP2-01	TP3-01
			Client sampling date / time	31-Jan-2018 00:00	06-Feb-2018 00:00	06-Feb-2018 00:00	06-Feb-2018 00:00	06-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802453-040	EM1802453-041	EM1802453-042	EM1802453-043	EM1802453-044
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**107**	**107**	**98.8**	**104**	**107**
2-Chlorophenol-D4	93951-73-6	0.5	%	**116**	**115**	**106**	**113**	**116**
2.4.6-Tribromophenol	118-79-6	0.5	%	**66.7**	**97.3**	**88.0**	**97.4**	**97.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP15-02	triplicate 1	TP1-01	TP2-01	TP3-01
				Client sampling date / time	31-Jan-2018 00:00	06-Feb-2018 00:00	06-Feb-2018 00:00	06-Feb-2018 00:00	06-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802453-040	EM1802453-041	EM1802453-042	EM1802453-043	EM1802453-044
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		101	120	108	114	116
Anthracene-d10	1719-06-8	0.5	%		89.2	114	106	118	113
4-Terphenyl-d14	1718-51-0	0.5	%		96.2	116	113	112	114
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		83.0	69.7	80.7	95.1	87.2
Toluene-D8	2037-26-5	0.2	%		81.2	58.8	73.5	93.7	88.7
4-Bromofluorobenzene	460-00-4	0.2	%		109	65.1	61.8	82.1	76.2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP5-01	TP6-02	TP9-02	----	----
			Client sampling date / time	06-Feb-2018 00:00	06-Feb-2018 00:00	06-Feb-2018 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1802453-045	EM1802453-046	EM1802453-047	--------	--------
				Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	4.1	12.8	7.7	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	----
Barium	7440-39-3	10	mg/kg	20	110	70	----	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	----	----
Boron	7440-42-8	50	mg/kg	<50	<50	<50	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	5	5	5	----	----
Cobalt	7440-48-4	2	mg/kg	12	5	7	----	----
Copper	7440-50-8	5	mg/kg	70	12	25	----	----
Lead	7439-92-1	5	mg/kg	<5	231	69	----	----
Manganese	7439-96-5	5	mg/kg	330	365	443	----	----
Nickel	7440-02-0	2	mg/kg	17	4	8	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----
Vanadium	7440-62-2	5	mg/kg	41	16	19	----	----
Zinc	7440-66-6	5	mg/kg	25	55	65	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	0.2	0.1	----	----
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup								
>C10 - C16 Fraction	----	50	mg/kg	----	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	----	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	----	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	<50	----	----
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup								
C10 - C14 Fraction	----	50	mg/kg	----	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	----	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	----	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	<50	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP5-01	TP6-02	TP9-02	----	----
			Client sampling date / time	06-Feb-2018 00:00	06-Feb-2018 00:00	06-Feb-2018 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1802453-045	EM1802453-046	EM1802453-047	--------	--------
				Result	Result	Result	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg	<50	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP5-01	TP6-02	TP9-02	----	----
				Client sampling date / time	06-Feb-2018 00:00	06-Feb-2018 00:00	06-Feb-2018 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1802453-045	EM1802453-046	EM1802453-047	--------	--------
					Result	Result	Result	----	----
EP080: BTEXN - Continued									
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**108**	**111**	**114**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**116**	**119**	**123**	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**96.6**	**100**	**102**	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**119**	**121**	**124**	----	----
Anthracene-d10	1719-06-8	0.5	%		**115**	**115**	**115**	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**117**	**119**	**118**	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**81.1**	**86.4**	**89.3**	----	----
Toluene-D8	2037-26-5	0.2	%		**71.8**	**83.0**	**88.1**	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**70.4**	**78.5**	**69.2**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	rinsate digger	TB1	----	----	----
			Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1802453-001	EM1802453-002	--------	--------	--------
				Result	Result	----	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	**0.002**	----	----	----	----
Boron	7440-42-8	0.05	mg/L	<0.05	----	----	----	----
Barium	7440-39-3	0.001	mg/L	**0.069**	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L	<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L	**0.011**	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	**0.170**	----	----	----	----
Copper	7440-50-8	0.001	mg/L	**0.040**	----	----	----	----
Manganese	7439-96-5	0.001	mg/L	**0.457**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	**0.027**	----	----	----	----
Lead	7439-92-1	0.001	mg/L	**0.019**	----	----	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L	**0.02**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	**0.058**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L	<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L	<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	<100	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	rinsate digger	TB1	----	----	----
				Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1802453-001	EM1802453-002	--------	--------	--------
					Result	Result	----	----	----
EP080: BTEXN - Continued									
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**91.8**	**89.1**	----	----	----
Toluene-D8	2037-26-5	2	%		**85.8**	**85.0**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**106**	**107**	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	38	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	33	139
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	45	139

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1802479**	Page	: 1 of 40
Client	: **SEMF PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI	Date Samples Received	: 05-Feb-2018 11:05
Order number	: 4193.005	Date Analysis Commenced	: 06-Feb-2018
C-O-C number	: ----	Issue Date	: 20-Feb-2018 13:15
Sampler	: FIONA KESERUE-PONTE		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 44		
No. of samples analysed	: 44		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075SIM: Sample EM1802626_3 shows poor precision due to sample heterogeneity. Confirmed by visual inspection.
- EP202: Particular samples required dilution due to sample matrix. LOR values have been adjusted accordingly.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Triplicate 3	Duplicate 3	Triplicate 5	T13-01	T13-02
			Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802479-001	EM1802479-004	EM1802479-006	EM1802479-007	EM1802479-008
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	24.8	14.6	7.3	25.6	19.5
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	30	20	50	60	40
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	6	6	4	10	6
Cobalt	7440-48-4	2	mg/kg	5	4	4	8	4
Copper	7440-50-8	5	mg/kg	<5	<5	9	<5	6
Lead	7439-92-1	5	mg/kg	10	<5	11	14	25
Manganese	7439-96-5	5	mg/kg	72	58	104	77	51
Nickel	7440-02-0	2	mg/kg	5	5	6	8	5
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	11	12	12	17	10
Zinc	7440-66-6	5	mg/kg	39	10	33	40	25
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	----	----
gamma-BHC	58-89-9	0.05	mg/kg	----	----	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	----	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	----	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg	----	----	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	----	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg	----	----	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	Triplicate 3	Duplicate 3	Triplicate 5	T13-01	T13-02
				Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802479-001	EM1802479-004	EM1802479-006	EM1802479-007	EM1802479-008
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	----	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	----	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	----	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	----	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	----	<0.2	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	----	<0.05	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	----	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	----	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	----	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	----	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg		----	----	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg		----	----	<0.05	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	----	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	----	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg		----	----	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg		----	----	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	----	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg		----	----	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	<0.05	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	----	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg		----	----	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg		----	----	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	<0.05	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	Triplicate 3	Duplicate 3	Triplicate 5	T13-01	T13-02
				Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802479-001	EM1802479-004	EM1802479-006	EM1802479-007	EM1802479-008
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	<1	----	----	
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	<0.5	----	----	
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	<0.5	----	----	
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	<0.5	----	----	
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	<0.5	----	----	
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	<0.5	----	----	
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	<0.5	----	----	
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	<0.5	----	----	
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	<2	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10	
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50	
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100	

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Triplicate 3	Duplicate 3	Triplicate 5	T13-01	T13-02
			Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802479-001	EM1802479-004	EM1802479-006	EM1802479-007	EM1802479-008
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	----	----	<0.02	----	----
2.4-DB	94-82-6	0.02	mg/kg	----	----	<0.02	----	----
Dicamba	1918-00-9	0.02	mg/kg	----	----	<0.02	----	----
Mecoprop	93-65-2	0.02	mg/kg	----	----	<0.02	----	----
MCPA	94-74-6	0.02	mg/kg	----	----	<0.02	----	----
2.4-DP	120-36-5	0.02	mg/kg	----	----	<0.02	----	----
2.4-D	94-75-7	0.02	mg/kg	----	----	<0.02	----	----
Triclopyr	55335-06-3	0.02	mg/kg	----	----	<0.02	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	----	----	<0.02	----	----
2.4.5-T	93-76-5	0.02	mg/kg	----	----	<0.02	----	----
MCPB	94-81-5	0.02	mg/kg	----	----	<0.02	----	----
Picloram	1918-02-1	0.02	mg/kg	----	----	<0.02	----	----
Clopyralid	1702-17-6	0.02	mg/kg	----	----	<0.02	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	Triplicate 3	Duplicate 3	Triplicate 5	T13-01	T13-02
				Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802479-001	EM1802479-004	EM1802479-006	EM1802479-007	EM1802479-008
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
Fluroxypyr	69377-81-7	0.02	mg/kg		----	----	<0.02	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	**83.9**	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	**95.0**	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**115**	**95.6**	**103**	**108**	**115**
2-Chlorophenol-D4	93951-73-6	0.5	%		**98.0**	**101**	**110**	**108**	**104**
2.4.6-Tribromophenol	118-79-6	0.5	%		**94.5**	**90.2**	**91.2**	**112**	**94.6**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**119**	**91.6**	**121**	**92.2**	**92.6**
Anthracene-d10	1719-06-8	0.5	%		**116**	**123**	**122**	**117**	**124**
4-Terphenyl-d14	1718-51-0	0.5	%		**103**	**103**	**89.2**	**106**	**103**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**52.6**	**72.7**	**77.8**	**74.9**	**73.3**
Toluene-D8	2037-26-5	0.2	%		**61.2**	**80.1**	**82.0**	**93.6**	**76.9**
4-Bromofluorobenzene	460-00-4	0.2	%		**94.7**	**97.4**	**102**	**104**	**99.6**
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		----	----	**15.8**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T15-01	T15-02	T15-03	T15-04	T15-05
			Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802479-009	EM1802479-010	EM1802479-011	EM1802479-012	EM1802479-013
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	29.5	19.7	25.5	20.9	24.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	50	30	70	30	100
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	7	5	7	5	4
Cobalt	7440-48-4	2	mg/kg	6	3	4	3	3
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	40
Lead	7439-92-1	5	mg/kg	22	9	47	107	59
Manganese	7439-96-5	5	mg/kg	34	28	54	53	222
Nickel	7440-02-0	2	mg/kg	6	4	4	5	3
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	13	9	12	9	9
Zinc	7440-66-6	5	mg/kg	24	25	69	29	149
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T15-01	T15-02	T15-03	T15-04	T15-05
				Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802479-009	EM1802479-010	EM1802479-011	EM1802479-012	EM1802479-013
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T15-01	T15-02	T15-03	T15-04	T15-05
			Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802479-009	EM1802479-010	EM1802479-011	EM1802479-012	EM1802479-013
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**112**	**109**	**105**	**89.7**	**97.4**
2-Chlorophenol-D4	93951-73-6	0.5	%	**109**	**103**	**92.1**	**89.3**	**94.1**
2.4.6-Tribromophenol	118-79-6	0.5	%	**102**	**93.1**	**94.8**	**94.6**	**99.5**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**99.2**	**109**	**94.5**	**108**	**80.9**
Anthracene-d10	1719-06-8	0.5	%	**113**	**117**	**119**	**126**	**118**
4-Terphenyl-d14	1718-51-0	0.5	%	**119**	**105**	**122**	**108**	**112**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**73.7**	**80.8**	**68.2**	**77.2**	**64.1**
Toluene-D8	2037-26-5	0.2	%	**73.9**	**84.1**	**69.8**	**81.7**	**66.8**
4-Bromofluorobenzene	460-00-4	0.2	%	**96.1**	**105**	**95.0**	**103**	**90.2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T15-06	T15-07	T15-08	T5-01	T5-02
			Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802479-014	EM1802479-015	EM1802479-016	EM1802479-017	EM1802479-018
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	27.7	21.5	23.3	10.6	21.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	100	110	160	40	10
Beryllium	7440-41-7	1	mg/kg	1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	12	2	17	8	6
Cobalt	7440-48-4	2	mg/kg	9	2	21	6	5
Copper	7440-50-8	5	mg/kg	6	<5	21	21	<5
Lead	7439-92-1	5	mg/kg	20	13	62	19	6
Manganese	7439-96-5	5	mg/kg	65	204	753	145	126
Nickel	7440-02-0	2	mg/kg	10	<2	7	10	5
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	16	6	85	19	18
Zinc	7440-66-6	5	mg/kg	51	130	74	23	13
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T15-06	T15-07	T15-08	T5-01	T5-02
				Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802479-014	EM1802479-015	EM1802479-016	EM1802479-017	EM1802479-018
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	**530**	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	**430**	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	**960**	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	**840**	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	**160**	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	**1000**	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T15-06	T15-07	T15-08	T5-01	T5-02
			Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802479-014	EM1802479-015	EM1802479-016	EM1802479-017	EM1802479-018
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**99.0**	**75.9**	**101**	**113**	**101**
2-Chlorophenol-D4	93951-73-6	0.5	%	**99.8**	**79.3**	**98.0**	**103**	**95.3**
2.4.6-Tribromophenol	118-79-6	0.5	%	**112**	**78.7**	**109**	**115**	**94.1**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**97.5**	**92.9**	**94.8**	**103**	**89.5**
Anthracene-d10	1719-06-8	0.5	%	**112**	**96.1**	**118**	**116**	**124**
4-Terphenyl-d14	1718-51-0	0.5	%	**105**	**87.5**	**99.4**	**124**	**85.0**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**59.0**	**67.4**	**72.7**	**69.5**	**64.2**
Toluene-D8	2037-26-5	0.2	%	**62.9**	**70.6**	**78.0**	**70.2**	**63.8**
4-Bromofluorobenzene	460-00-4	0.2	%	**89.0**	**95.3**	**101**	**88.3**	**86.1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T5-03	T5-04	T5-05	T5-06	T5-07
			Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802479-019	EM1802479-020	EM1802479-021	EM1802479-022	EM1802479-023
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	14.3	21.4	14.3	9.8	5.4
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	20	20	30	20	20
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	6	5	8	5	5
Cobalt	7440-48-4	2	mg/kg	5	5	8	9	8
Copper	7440-50-8	5	mg/kg	<5	8	37	42	44
Lead	7439-92-1	5	mg/kg	<5	<5	5	<5	<5
Manganese	7439-96-5	5	mg/kg	152	92	170	229	208
Nickel	7440-02-0	2	mg/kg	6	7	14	13	12
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	14	10	30	32	34
Zinc	7440-66-6	5	mg/kg	11	16	21	24	16
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T5-03	T5-04	T5-05	T5-06	T5-07
				Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802479-019	EM1802479-020	EM1802479-021	EM1802479-022	EM1802479-023
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	**340**	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	**280**	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	**620**	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	**540**	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	**110**	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	**650**	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T5-03	T5-04	T5-05	T5-06	T5-07
			Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802479-019	EM1802479-020	EM1802479-021	EM1802479-022	EM1802479-023
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**99.3**	**94.5**	**95.8**	**88.7**	**102**
2-Chlorophenol-D4	93951-73-6	0.5	%	**97.8**	**101**	**98.4**	**94.9**	**108**
2.4.6-Tribromophenol	118-79-6	0.5	%	**75.5**	**95.2**	**82.0**	**90.6**	**76.3**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**91.6**	**91.5**	**91.2**	**90.3**	**108**
Anthracene-d10	1719-06-8	0.5	%	**123**	**118**	**112**	**112**	**106**
4-Terphenyl-d14	1718-51-0	0.5	%	**86.7**	**109**	**96.2**	**81.8**	**108**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**87.7**	**77.3**	**87.3**	**74.6**	**77.6**
Toluene-D8	2037-26-5	0.2	%	**86.7**	**87.3**	**104**	**76.0**	**83.2**
4-Bromofluorobenzene	460-00-4	0.2	%	**107**	**106**	**121**	**98.8**	**100**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T5-08	T5-09	T4-01	T4-02	T4-03
			Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802479-024	EM1802479-025	EM1802479-026	EM1802479-027	EM1802479-028
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	5.7	5.5	5.6	4.0	11.0
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	6	<5
Barium	7440-39-3	10	mg/kg	20	20	20	30	70
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	7	5	4	9	4
Cobalt	7440-48-4	2	mg/kg	12	13	2	5	<2
Copper	7440-50-8	5	mg/kg	70	72	<5	6	8
Lead	7439-92-1	5	mg/kg	<5	<5	6	6	27
Manganese	7439-96-5	5	mg/kg	354	367	84	139	133
Nickel	7440-02-0	2	mg/kg	18	19	4	19	3
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	48	45	8	39	9
Zinc	7440-66-6	5	mg/kg	40	23	17	30	67
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T5-08	T5-09	T4-01	T4-02	T4-03
				Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802479-024	EM1802479-025	EM1802479-026	EM1802479-027	EM1802479-028
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		----	----	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		----	----	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		----	----	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		----	----	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T5-08	T5-09	T4-01	T4-02	T4-03
				Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802479-024	EM1802479-025	EM1802479-026	EM1802479-027	EM1802479-028
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	**140**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T5-08	T5-09	T4-01	T4-02	T4-03
				Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802479-024	EM1802479-025	EM1802479-026	EM1802479-027	EM1802479-028
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	**200**
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	**340**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	**300**
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	**300**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		----	----	<0.02	<0.02	<0.02
2.4-DB	94-82-6	0.02	mg/kg		----	----	<0.02	<0.02	<0.02
Dicamba	1918-00-9	0.02	mg/kg		----	----	<0.02	<0.02	<0.02
Mecoprop	93-65-2	0.02	mg/kg		----	----	<0.02	<0.02	<0.02
MCPA	94-74-6	0.02	mg/kg		----	----	<0.02	<0.02	<0.02
2.4-DP	120-36-5	0.02	mg/kg		----	----	<0.02	<0.02	<0.02
2.4-D	94-75-7	0.02	mg/kg		----	----	<0.02	<0.02	<0.02
Triclopyr	55335-06-3	0.02	mg/kg		----	----	<0.02	<0.02	<0.02
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		----	----	<0.02	<0.02	<0.02
2.4.5-T	93-76-5	0.02	mg/kg		----	----	<0.02	<0.02	<0.02
MCPB	94-81-5	0.02	mg/kg		----	----	<0.02	<0.02	<0.02
Picloram	1918-02-1	0.02	mg/kg		----	----	<0.02	<0.02	<0.02
Clopyralid	1702-17-6	0.02	mg/kg		----	----	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T5-08	T5-09	T4-01	T4-02	T4-03
			Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802479-024	EM1802479-025	EM1802479-026	EM1802479-027	EM1802479-028
				Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued								
Fluroxypyr	69377-81-7	0.02	mg/kg	----	----	<0.02	<0.02	<0.02
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	----	93.7	88.6	92.3
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	----	118	114	112
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	104	105	103	99.7	101
2-Chlorophenol-D4	93951-73-6	0.5	%	109	111	108	104	109
2.4.6-Tribromophenol	118-79-6	0.5	%	78.4	75.6	70.6	68.6	79.5
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	109	112	110	106	110
Anthracene-d10	1719-06-8	0.5	%	108	107	102	123	99.0
4-Terphenyl-d14	1718-51-0	0.5	%	110	113	111	106	107
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	82.8	90.0	78.9	87.8	69.0
Toluene-D8	2037-26-5	0.2	%	89.0	102	93.6	90.6	69.8
4-Bromofluorobenzene	460-00-4	0.2	%	116	123	115	118	90.6
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%	----	----	85.9	93.8	15.6

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T4-04	T4-05	T14-01	T14-02	T14-03
			Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802479-029	EM1802479-030	EM1802479-031	EM1802479-032	EM1802479-033
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	10.7	8.0	7.5	7.4	49.6
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	44
Barium	7440-39-3	10	mg/kg	30	20	120	100	4440
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	6
Chromium	7440-47-3	2	mg/kg	4	3	5	4	38
Cobalt	7440-48-4	2	mg/kg	3	2	5	2	11
Copper	7440-50-8	5	mg/kg	<5	<5	9	7	1060
Lead	7439-92-1	5	mg/kg	11	8	62	55	4360
Manganese	7439-96-5	5	mg/kg	72	66	202	212	626
Nickel	7440-02-0	2	mg/kg	4	3	4	3	69
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	8	11	16	8	18
Zinc	7440-66-6	5	mg/kg	35	18	45	51	5080
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.2	1.6	1.5
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T4-04	T4-05	T14-01	T14-02	T14-03
				Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802479-029	EM1802479-030	EM1802479-031	EM1802479-032	EM1802479-033
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T4-04	T4-05	T14-01	T14-02	T14-03
				Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802479-029	EM1802479-030	EM1802479-031	EM1802479-032	EM1802479-033
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T4-04	T4-05	T14-01	T14-02	T14-03
				Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802479-029	EM1802479-030	EM1802479-031	EM1802479-032	EM1802479-033
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	110
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	110
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.02	<0.02	----	----	----
2.4-DB	94-82-6	0.02	mg/kg		<0.02	<0.02	----	----	----
Dicamba	1918-00-9	0.02	mg/kg		<0.02	<0.02	----	----	----
Mecoprop	93-65-2	0.02	mg/kg		<0.02	<0.02	----	----	----
MCPA	94-74-6	0.02	mg/kg		<0.02	<0.02	----	----	----
2.4-DP	120-36-5	0.02	mg/kg		<0.02	<0.02	----	----	----
2.4-D	94-75-7	0.02	mg/kg		<0.02	<0.02	----	----	----
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	<0.02	----	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	<0.02	----	----	----
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	<0.02	----	----	----
MCPB	94-81-5	0.02	mg/kg		<0.02	<0.02	----	----	----
Picloram	1918-02-1	0.02	mg/kg		<0.02	<0.02	----	----	----
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	<0.02	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T4-04	T4-05	T14-01	T14-02	T14-03
				Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802479-029	EM1802479-030	EM1802479-031	EM1802479-032	EM1802479-033
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	<0.02	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		103	102	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		118	108	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		105	100	103	99.8	101
2-Chlorophenol-D4	93951-73-6	0.5	%		112	106	109	106	107
2.4.6-Tribromophenol	118-79-6	0.5	%		84.6	78.1	76.2	78.5	74.8
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		112	107	110	107	108
Anthracene-d10	1719-06-8	0.5	%		102	106	98.4	103	107
4-Terphenyl-d14	1718-51-0	0.5	%		111	106	109	104	109
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		69.4	74.4	71.9	78.2	69.8
Toluene-D8	2037-26-5	0.2	%		73.5	94.4	79.1	85.7	67.2
4-Bromofluorobenzene	460-00-4	0.2	%		94.0	106	102	111	80.8
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		13.6	66.3	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T14-04	T6-01	T6-02	T11-01	T11-02
			Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802479-034	EM1802479-035	EM1802479-036	EM1802479-037	EM1802479-038
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	6.6	5.3	20.2	20.4	22.4
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Barium	7440-39-3	10	mg/kg	100	----	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	----
Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	6	----	----	----	----
Cobalt	7440-48-4	2	mg/kg	3	----	----	----	----
Copper	7440-50-8	5	mg/kg	6	----	----	----	----
Lead	7439-92-1	5	mg/kg	53	----	----	----	----
Manganese	7439-96-5	5	mg/kg	72	----	----	----	----
Nickel	7440-02-0	2	mg/kg	3	----	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	19	----	----	----	----
Zinc	7440-66-6	5	mg/kg	45	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.2	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	<0.05	----	----
gamma-BHC	58-89-9	0.05	mg/kg	----	<0.05	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	<0.05	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	<0.05	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg	----	<0.05	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	<0.05	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	<0.05	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	<0.05	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	<0.05	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	<0.05	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	<0.05	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg	----	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T14-04	T6-01	T6-02	T11-01	T11-02
				Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802479-034	EM1802479-035	EM1802479-036	EM1802479-037	EM1802479-038
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	<0.05	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	<0.05	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	<0.05	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	<0.2	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	<0.05	<0.05	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	<0.05	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	<0.05	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	<0.2	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg		----	<0.05	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg		----	<0.05	<0.05	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	<0.05	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	<0.2	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg		----	<0.05	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg		----	<0.05	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	<0.05	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg		----	<0.2	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	<0.05	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	<0.05	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	<0.05	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	<0.05	<0.05	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	<0.05	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg		----	<0.05	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg		----	<0.05	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	<0.05	<0.05	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T14-04	T6-01	T6-02	T11-01	T11-02
				Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802479-034	EM1802479-035	EM1802479-036	EM1802479-037	EM1802479-038
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	**140**	<100	<100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T14-04	T6-01	T6-02	T11-01	T11-02
				Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802479-034	EM1802479-035	EM1802479-036	EM1802479-037	EM1802479-038
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	100	mg/kg		<100	<100	**150**	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	**290**	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	**250**	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	**250**	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		----	<0.02	<0.02	----	----
2.4-DB	94-82-6	0.02	mg/kg		----	<0.02	<0.02	----	----
Dicamba	1918-00-9	0.02	mg/kg		----	<0.02	<0.02	----	----
Mecoprop	93-65-2	0.02	mg/kg		----	<0.02	<0.02	----	----
MCPA	94-74-6	0.02	mg/kg		----	<0.02	<0.02	----	----
2.4-DP	120-36-5	0.02	mg/kg		----	<0.02	<0.02	----	----
2.4-D	94-75-7	0.02	mg/kg		----	<0.02	<0.02	----	----
Triclopyr	55335-06-3	0.02	mg/kg		----	<0.02	<0.02	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		----	<0.02	<0.02	----	----
2.4.5-T	93-76-5	0.02	mg/kg		----	<0.02	**0.04**	----	----
MCPB	94-81-5	0.02	mg/kg		----	<0.02	<0.02	----	----
Picloram	1918-02-1	0.02	mg/kg		----	<0.02	<0.02	----	----
Clopyralid	1702-17-6	0.02	mg/kg		----	<0.02	<0.02	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T14-04	T6-01	T6-02	T11-01	T11-02
			Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802479-034	EM1802479-035	EM1802479-036	EM1802479-037	EM1802479-038
				Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued								
Fluroxypyr	69377-81-7	0.02	mg/kg	----	<0.02	<0.02	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	105	102	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	94.1	108	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	102	103	100	102	98.5
2-Chlorophenol-D4	93951-73-6	0.5	%	108	110	105	109	105
2.4.6-Tribromophenol	118-79-6	0.5	%	78.4	77.6	80.3	74.5	69.2
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	109	113	106	109	105
Anthracene-d10	1719-06-8	0.5	%	106	102	123	101	98.8
4-Terphenyl-d14	1718-51-0	0.5	%	108	108	104	109	106
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	83.0	85.1	65.6	76.1	65.7
Toluene-D8	2037-26-5	0.2	%	90.3	87.9	71.0	81.0	66.3
4-Bromofluorobenzene	460-00-4	0.2	%	115	112	89.6	101	89.3
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%	----	14.0	14.3	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T11-03	T11-04	T11-05	T11-06	T11-07
			Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802479-039	EM1802479-040	EM1802479-041	EM1802479-042	EM1802479-043
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**19.1**	**22.7**	**26.9**	**20.8**	**29.2**
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T11-03	T11-04	T11-05	T11-06	T11-07
				Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802479-039	EM1802479-040	EM1802479-041	EM1802479-042	EM1802479-043
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**94.7**	**102**	**103**	**115**	**105**
2-Chlorophenol-D4	93951-73-6	0.5	%		**98.8**	**108**	**110**	**114**	**107**
2.4.6-Tribromophenol	118-79-6	0.5	%		**78.3**	**74.6**	**76.8**	**92.8**	**86.9**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**102**	**108**	**109**	**112**	**107**
Anthracene-d10	1719-06-8	0.5	%		**98.6**	**104**	**103**	**110**	**106**
4-Terphenyl-d14	1718-51-0	0.5	%		**111**	**108**	**111**	**120**	**118**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T11-03	T11-04	T11-05	T11-06	T11-07
				Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802479-039	EM1802479-040	EM1802479-041	EM1802479-042	EM1802479-043
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**66.6**	**64.8**	**66.3**	**68.6**	**53.8**
Toluene-D8	2037-26-5	0.2	%		**72.4**	**69.3**	**67.9**	**72.7**	**56.7**
4-Bromofluorobenzene	460-00-4	0.2	%		**93.5**	**92.6**	**95.3**	**91.7**	**79.2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T11-08	----	----	----	----
			Client sampling date / time	01-Feb-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1802479-044	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**28.5**	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T11-08	----	----	----	----
			Client sampling date / time	01-Feb-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1802479-044	--------	--------	--------	--------
				Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg	**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg	<50	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	----	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**106**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	**107**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	**85.3**	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**106**	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%	**103**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	**118**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T11-08	----	----	----	----
				Client sampling date / time	01-Feb-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1802479-044	--------	--------	--------	--------
					Result	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**74.7**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		**76.6**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**103**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	Rinsate auger	TB2	rinsate excavator	----	----
			Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1802479-002	EM1802479-003	EM1802479-005	--------	--------
				Result	Result	Result	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	<0.001	----	----
Boron	7440-42-8	0.05	mg/L	<0.05	----	<0.05	----	----
Barium	7440-39-3	0.001	mg/L	<0.001	----	**0.027**	----	----
Beryllium	7440-41-7	0.001	mg/L	<0.001	----	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	**0.0002**	----	----
Cobalt	7440-48-4	0.001	mg/L	<0.001	----	**0.001**	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	**0.007**	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	**0.005**	----	----
Manganese	7439-96-5	0.001	mg/L	<0.001	----	**0.056**	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	**0.002**	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	**0.017**	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	----	<0.01	----	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	----	<0.01	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	**0.029**	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	<0.0001	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L	<50	----	<50	----	----
C15 - C28 Fraction	----	100	µg/L	<100	----	<100	----	----
C29 - C36 Fraction	----	50	µg/L	<50	----	<50	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	<50	----	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	<20	<20	----	----
>C10 - C16 Fraction	----	100	µg/L	<100	----	<100	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	----	<100	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	----	<100	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	<100	----	<100	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	<100	----	<100	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Rinsate auger	TB2	rinsate excavator	----	----
				Client sampling date / time	01-Feb-2018 00:00	01-Feb-2018 00:00	01-Feb-2018 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1802479-002	EM1802479-003	EM1802479-005	--------	--------
					Result	Result	Result	----	----
EP080: BTEXN - Continued									
Toluene	108-88-3	2	µg/L		<2	<2	<2	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	----	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	<2	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	<1	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**82.8**	**101**	**106**	----	----
Toluene-D8	2037-26-5	2	%		**74.4**	**99.6**	**77.5**	----	----
4-Bromofluorobenzene	460-00-4	2	%		**84.6**	**110**	**94.0**	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	38	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	33	139
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	45	139

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1802495**	Page	: 1 of 18
Client	: **SEMF PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI	Date Samples Received	: 05-Feb-2018 11:05
Order number	: 4193.005	Date Analysis Commenced	: 06-Feb-2018
C-O-C number	: ----	Issue Date	: 12-Feb-2018 17:46
Sampler	: FIONA KESERUE-PONTE		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 22		
No. of samples analysed	: 22		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T2-WALL1	T2-WALL2	T2-WALL3	T2-WALL4	T2-BASE
			Client sampling date / time	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802495-001	EM1802495-002	EM1802495-003	EM1802495-004	EM1802495-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	10.8	28.2	19.7	23.8	11.0
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	30	20	30	50	30
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	7	7	6	10	5
Cobalt	7440-48-4	2	mg/kg	7	4	6	6	6
Copper	7440-50-8	5	mg/kg	8	<5	6	<5	7
Lead	7439-92-1	5	mg/kg	6	7	9	13	8
Manganese	7439-96-5	5	mg/kg	222	27	181	35	167
Nickel	7440-02-0	2	mg/kg	5	5	4	7	4
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	49	18	49	16	36
Zinc	7440-66-6	5	mg/kg	11	10	9	15	12
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T2-WALL1	T2-WALL2	T2-WALL3	T2-WALL4	T2-BASE
			Client sampling date / time	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802495-001	EM1802495-002	EM1802495-003	EM1802495-004	EM1802495-005
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**104**	**100**	**109**	**102**	**108**
2-Chlorophenol-D4	93951-73-6	0.5	%	**101**	**97.8**	**103**	**97.8**	**102**
2.4.6-Tribromophenol	118-79-6	0.5	%	**80.6**	**74.8**	**78.5**	**76.3**	**77.7**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T2-WALL1	T2-WALL2	T2-WALL3	T2-WALL4	T2-BASE
			Client sampling date / time	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802495-001	EM1802495-002	EM1802495-003	EM1802495-004	EM1802495-005
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	101	97.1	108	96.5	98.9
Anthracene-d10	1719-06-8	0.5	%	116	115	104	114	117
4-Terphenyl-d14	1718-51-0	0.5	%	115	112	118	111	116
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	74.0	68.6	70.2	70.2	71.8
Toluene-D8	2037-26-5	0.2	%	75.5	68.2	67.9	70.6	77.2
4-Bromofluorobenzene	460-00-4	0.2	%	102	92.8	93.6	98.3	99.7

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T3-FUEL LINE	T3-BOWSER BASE	BACKFILL SAND	T3 STOCKPILE 1	T3 STOCKPILE 2
			Client sampling date / time	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802495-006	EM1802495-007	EM1802495-008	EM1802495-009	EM1802495-010
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**14.5**	**5.0**	**14.0**	**10.4**	**12.1**
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T3-FUEL LINE	T3-BOWSER BASE	BACKFILL SAND	T3 STOCKPILE 1	T3 STOCKPILE 2
				Client sampling date / time	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802495-006	EM1802495-007	EM1802495-008	EM1802495-009	EM1802495-010
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	**130**	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	**130**	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	**170**	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	**170**	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**103**	**104**	**97.8**	**104**	**91.2**
2-Chlorophenol-D4	93951-73-6	0.5	%		**99.7**	**96.6**	**97.7**	**98.9**	**86.4**
2.4.6-Tribromophenol	118-79-6	0.5	%		**75.7**	**76.4**	**79.5**	**80.7**	**73.3**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**103**	**96.9**	**97.9**	**97.2**	**86.6**
Anthracene-d10	1719-06-8	0.5	%		**116**	**112**	**116**	**116**	**102**
4-Terphenyl-d14	1718-51-0	0.5	%		**115**	**108**	**111**	**114**	**98.7**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T3-FUEL LINE	T3-BOWSER BASE	BACKFILL SAND	T3 STOCKPILE 1	T3 STOCKPILE 2
				Client sampling date / time	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802495-006	EM1802495-007	EM1802495-008	EM1802495-009	EM1802495-010
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**73.7**	**78.0**	**69.4**	**71.1**	**73.8**
Toluene-D8	2037-26-5	0.2	%		**68.4**	**77.4**	**71.5**	**68.6**	**78.9**
4-Bromofluorobenzene	460-00-4	0.2	%		**96.3**	**103**	**109**	**95.3**	**103**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T3-WALL 1	T3-WALL 2	T3-WALL 3	T3-WALL 4	T3-BASE
			Client sampling date / time	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802495-011	EM1802495-012	EM1802495-013	EM1802495-014	EM1802495-015
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	12.4	12.2	10.4	9.6	7.0
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T3-WALL 1	T3-WALL 2	T3-WALL 3	T3-WALL 4	T3-BASE
				Client sampling date / time	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802495-011	EM1802495-012	EM1802495-013	EM1802495-014	EM1802495-015
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**109**	**88.1**	**93.1**	**104**	**104**
2-Chlorophenol-D4	93951-73-6	0.5	%		**104**	**95.8**	**97.2**	**103**	**101**
2.4.6-Tribromophenol	118-79-6	0.5	%		**87.3**	**82.5**	**78.6**	**80.4**	**79.8**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**107**	**107**	**103**	**116**	**107**
Anthracene-d10	1719-06-8	0.5	%		**101**	**116**	**116**	**108**	**104**
4-Terphenyl-d14	1718-51-0	0.5	%		**116**	**117**	**116**	**121**	**121**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T3-WALL 1	T3-WALL 2	T3-WALL 3	T3-WALL 4	T3-BASE
				Client sampling date / time	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1802495-011	EM1802495-012	EM1802495-013	EM1802495-014	EM1802495-015
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**79.5**	**70.1**	**76.1**	**73.7**	**80.6**
Toluene-D8	2037-26-5	0.2	%		**80.7**	**67.2**	**68.0**	**68.8**	**79.4**
4-Bromofluorobenzene	460-00-4	0.2	%		**104**	**91.1**	**96.7**	**95.2**	**104**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T3 WASTE SOIL	TRIPLICATE 7	DUPLICATE 1 (2/2/18)	----	----
			Client sampling date / time	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1802495-016	EM1802495-017	EM1802495-018	--------	--------
				Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**16.6**	**21.9**	**14.0**	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	<5	----	----	----
Barium	7440-39-3	10	mg/kg	----	**30**	----	----	----
Beryllium	7440-41-7	1	mg/kg	----	<1	----	----	----
Boron	7440-42-8	50	mg/kg	----	<50	----	----	----
Cadmium	7440-43-9	1	mg/kg	----	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	----	**5**	----	----	----
Cobalt	7440-48-4	2	mg/kg	----	**6**	----	----	----
Copper	7440-50-8	5	mg/kg	----	**7**	----	----	----
Lead	7439-92-1	5	mg/kg	----	**7**	----	----	----
Manganese	7439-96-5	5	mg/kg	----	**144**	----	----	----
Nickel	7440-02-0	2	mg/kg	----	**4**	----	----	----
Selenium	7782-49-2	5	mg/kg	----	<5	----	----	----
Vanadium	7440-62-2	5	mg/kg	----	**36**	----	----	----
Zinc	7440-66-6	5	mg/kg	----	**11**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	<0.5	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	<0.5	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	<0.5	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	<0.5	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	<0.5	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	<2	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T3 WASTE SOIL	TRIPLICATE 7	DUPLICATE 1 (2/2/18)	----	----
			Client sampling date / time	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1802495-016	EM1802495-017	EM1802495-018	--------	--------
				Result	Result	Result	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	----
EP080: BTEXN								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T3 WASTE SOIL	TRIPLICATE 7	DUPLICATE 1 (2/2/18)	----	----
			Client sampling date / time	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1802495-016	EM1802495-017	EM1802495-018	--------	--------
				Result	Result	Result	----	----
EP080: BTEXN - Continued								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**103**	**109**	**105**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	**101**	**105**	**104**	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	**80.9**	**79.2**	**81.4**	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**102**	**107**	**104**	----	----
Anthracene-d10	1719-06-8	0.5	%	**121**	**122**	**123**	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	**122**	**123**	**123**	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**76.8**	**69.8**	**78.0**	----	----
Toluene-D8	2037-26-5	0.2	%	**79.0**	**67.4**	**85.9**	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	**107**	**91.1**	**109**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	RINSATE EXCAVATOR BUCKET	RINSATE TROWEL (2/2/2018)	TANK WATER	TRIP BLANK	----
			Client sampling date / time	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	----
Compound	CAS Number	LOR	Unit	EM1802495-019	EM1802495-020	EM1802495-021	EM1802495-022	--------
				Result	Result	Result	Result	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	**0.002**	----	----
Boron	7440-42-8	0.05	mg/L	----	----	<0.05	----	----
Barium	7440-39-3	0.001	mg/L	----	----	**0.121**	----	----
Beryllium	7440-41-7	0.001	mg/L	----	----	**0.001**	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	**0.0004**	----	----
Cobalt	7440-48-4	0.001	mg/L	----	----	**0.028**	----	----
Chromium	7440-47-3	0.001	mg/L	----	----	**0.011**	----	----
Copper	7440-50-8	0.001	mg/L	----	----	**0.088**	----	----
Manganese	7439-96-5	0.001	mg/L	----	----	**1.16**	----	----
Nickel	7440-02-0	0.001	mg/L	----	----	**0.020**	----	----
Lead	7439-92-1	0.001	mg/L	----	----	**0.070**	----	----
Selenium	7782-49-2	0.01	mg/L	----	----	<0.01	----	----
Vanadium	7440-62-2	0.01	mg/L	----	----	**0.05**	----	----
Zinc	7440-66-6	0.005	mg/L	----	----	**0.442**	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	<0.0001	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	**3.0**	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	**1.4**	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	**7.5**	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RINSATE EXCAVATOR BUCKET	RINSATE TROWEL (2/2/2018)	TANK WATER	TRIP BLANK	----
				Client sampling date / time	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	----
Compound	CAS Number	LOR	Unit		EM1802495-019	EM1802495-020	EM1802495-021	EM1802495-022	--------
					Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	<1.0	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		<0.5	<0.5	**7.5**	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.5	<0.5	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	**160**	<20	----
C10 - C14 Fraction	----	50	µg/L		<50	<50	**3460**	----	----
C15 - C28 Fraction	----	100	µg/L		**160**	<100	**2410**	----	----
C29 - C36 Fraction	----	50	µg/L		**90**	<50	**60**	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		**250**	<50	**5930**	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	**320**	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	**200**	<20	----
>C10 - C16 Fraction	----	100	µg/L		<100	<100	**2010**	----	----
>C16 - C34 Fraction	----	100	µg/L		**250**	<100	**1720**	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		**250**	<100	**3730**	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	**1980**	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	**3**	<1	----
Toluene	108-88-3	2	µg/L		<2	<2	**13**	<2	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	**12**	<2	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RINSATE EXCAVATOR BUCKET	RINSATE TROWEL (2/2/2018)	TANK WATER	TRIP BLANK	----
				Client sampling date / time	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	02-Feb-2018 00:00	----
Compound	CAS Number	LOR	Unit		EM1802495-019	EM1802495-020	EM1802495-021	EM1802495-022	--------
					Result	Result	Result	Result	----
EP080: BTEXN - Continued									
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	56	<2	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	40	<2	----
^ Total Xylenes	----	2	µg/L		<2	<2	96	<2	----
^ Sum of BTEX	----	1	µg/L		<1	<1	124	<1	----
Naphthalene	91-20-3	5	µg/L		<5	<5	32	<5	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		30.4	24.0	24.0	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		74.6	61.9	52.8	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		88.3	94.8	99.1	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		102	84.9	67.5	----	----
Anthracene-d10	1719-06-8	1.0	%		100.0	90.1	61.4	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		92.6	101	81.1	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		88.9	85.2	101	94.7	----
Toluene-D8	2037-26-5	2	%		93.4	76.1	83.6	99.2	----
4-Bromofluorobenzene	460-00-4	2	%		85.9	90.7	97.8	95.5	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	46
2-Chlorophenol-D4	93951-73-6	23	104
2.4.6-Tribromophenol	118-79-6	28	130
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	36	114
Anthracene-d10	1719-06-8	51	119
4-Terphenyl-d14	1718-51-0	49	127
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1803452**	Page	: 1 of 27
Client	: **SEMF PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Outlands DSI	Date Samples Received	: 22-Feb-2018 10:05
Order number	: 4193.005	Date Analysis Commenced	: 23-Feb-2018
C-O-C number	: ----	Issue Date	: 28-Feb-2018 15:28
Sampler	: FIONA KESERUE-PONTE		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 34		
No. of samples analysed	: 34		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	triplicate 1	triplicate 3	duplicate 1	duplicate 2	T1-01
			Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1803452-004	EM1803452-005	EM1803452-006	EM1803452-007	EM1803452-008
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**29.0**	**15.6**	**11.6**	**12.2**	**20.4**
EG005T: Total Metals by ICP-AES								
Lead	7439-92-1	5	mg/kg	**35**	**35**	**93**	**320**	**14**
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	**0.5**	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	**0.5**	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	triplicate 1	triplicate 3	duplicate 1	duplicate 2	T1-01
				Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1803452-004	EM1803452-005	EM1803452-006	EM1803452-007	EM1803452-008
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	**740**	**690**	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	**2190**	**2550**	**270**	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	**180**	**340**	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	**2930**	**3420**	**610**	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	**1330**	**1320**	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	**1620**	**2020**	**500**	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	**200**	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	**2950**	**3340**	**700**	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	**1330**	**1320**	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**94.0**	**97.6**	**90.8**	**93.7**	**89.9**
2-Chlorophenol-D4	93951-73-6	0.5	%		**96.1**	**99.6**	**93.5**	**96.2**	**94.5**
2.4.6-Tribromophenol	118-79-6	0.5	%		**69.8**	**86.1**	**85.0**	**79.6**	**75.4**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**109**	**99.2**	**92.8**	**97.3**	**97.7**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	triplicate 1	triplicate 3	duplicate 1	duplicate 2	T1-01
				Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1803452-004	EM1803452-005	EM1803452-006	EM1803452-007	EM1803452-008
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
Anthracene-d10	1719-06-8	0.5	%		120	105	98.0	114	118
4-Terphenyl-d14	1718-51-0	0.5	%		101	99.8	90.5	97.6	98.8
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		75.4	110	95.4	76.4	87.0
Toluene-D8	2037-26-5	0.2	%		77.0	104	101	86.0	93.8
4-Bromofluorobenzene	460-00-4	0.2	%		76.9	117	118	86.7	100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T1-02	T1-03	T1-04	T1-05	T1-06
			Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1803452-009	EM1803452-010	EM1803452-011	EM1803452-012	EM1803452-013
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	27.2	26.5	20.1	18.4	10.0
EG005T: Total Metals by ICP-AES								
Lead	7439-92-1	5	mg/kg	42	25	<5	9	35
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T1-02	T1-03	T1-04	T1-05	T1-06
				Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1803452-009	EM1803452-010	EM1803452-011	EM1803452-012	EM1803452-013
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	**50**
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	**300**
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	**350**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	**110**
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	**290**
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	**400**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	**110**
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**94.6**	**88.0**	**91.3**	**92.6**	**91.1**
2-Chlorophenol-D4	93951-73-6	0.5	%		**97.6**	**90.5**	**93.7**	**94.7**	**93.5**
2.4.6-Tribromophenol	118-79-6	0.5	%		**81.7**	**67.2**	**68.9**	**69.8**	**76.3**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**106**	**91.9**	**94.1**	**96.6**	**92.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T1-02	T1-03	T1-04	T1-05	T1-06
				Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1803452-009	EM1803452-010	EM1803452-011	EM1803452-012	EM1803452-013
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
Anthracene-d10	1719-06-8	0.5	%		**118**	**117**	**122**	**123**	**110**
4-Terphenyl-d14	1718-51-0	0.5	%		**103**	**96.2**	**100**	**100.0**	**96.9**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**75.2**	**94.7**	**80.2**	**78.6**	**83.6**
Toluene-D8	2037-26-5	0.2	%		**89.1**	**108**	**93.6**	**93.2**	**90.6**
4-Bromofluorobenzene	460-00-4	0.2	%		**89.8**	**116**	**86.4**	**90.1**	**102**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T1-07	T1-08	T1-09	T1-10	T1-11
			Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1803452-014	EM1803452-015	EM1803452-016	EM1803452-017	EM1803452-018
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	14.5	10.1	12.0	12.5	11.9
EG005T: Total Metals by ICP-AES								
Lead	7439-92-1	5	mg/kg	11	32	45	65	60
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T1-07	T1-08	T1-09	T1-10	T1-11
				Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1803452-014	EM1803452-015	EM1803452-016	EM1803452-017	EM1803452-018
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	**50**	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	**110**	**970**	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	**130**	**540**	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	**240**	**1560**	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	**150**	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	**200**	**1290**	**130**	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	**240**	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	**200**	**1680**	**130**	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	**150**	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**93.5**	**94.2**	**90.4**	**92.2**	**92.4**
2-Chlorophenol-D4	93951-73-6	0.5	%		**96.0**	**95.8**	**93.8**	**95.6**	**94.8**
2.4.6-Tribromophenol	118-79-6	0.5	%		**71.4**	**74.1**	**82.6**	**75.9**	**76.7**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**104**	**97.9**	**94.3**	**104**	**95.1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T1-07	T1-08	T1-09	T1-10	T1-11
				Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1803452-014	EM1803452-015	EM1803452-016	EM1803452-017	EM1803452-018
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
Anthracene-d10	1719-06-8	0.5	%		**122**	**121**	**113**	**122**	**118**
4-Terphenyl-d14	1718-51-0	0.5	%		**101**	**99.6**	**94.4**	**98.7**	**105**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**85.2**	**90.4**	**101**	**86.1**	**84.5**
Toluene-D8	2037-26-5	0.2	%		**100**	**99.8**	**113**	**99.8**	**105**
4-Bromofluorobenzene	460-00-4	0.2	%		**93.3**	**98.7**	**112**	**95.6**	**105**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T1-12	T1-13	T1-14	DT1	DT2
			Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1803452-019	EM1803452-020	EM1803452-021	EM1803452-022	EM1803452-023
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**10.9**	**2.8**	**6.9**	**12.5**	**11.0**
EG005T: Total Metals by ICP-AES								
Lead	7439-92-1	5	mg/kg	**21**	**44**	**44**	**40**	**94**
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	**0.6**	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	**0.9**	**0.7**	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg	<0.5	**1.5**	**0.7**	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T1-12	T1-13	T1-14	DT1	DT2
				Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1803452-019	EM1803452-020	EM1803452-021	EM1803452-022	EM1803452-023
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	**180**	**120**	**450**	**810**
C15 - C28 Fraction	----	100	mg/kg		**120**	**910**	**530**	**1510**	**2970**
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	**190**
^ C10 - C36 Fraction (sum)	----	50	mg/kg		**120**	**1090**	**650**	**1960**	**3970**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		**60**	**430**	**270**	**830**	**1560**
>C16 - C34 Fraction	----	100	mg/kg		**110**	**710**	**400**	**1180**	**2340**
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		**170**	**1140**	**670**	**2010**	**3900**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		**60**	**430**	**270**	**830**	**1560**
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**90.4**	**90.9**	**90.2**	**93.0**	**90.9**
2-Chlorophenol-D4	93951-73-6	0.5	%		**92.3**	**92.0**	**91.4**	**93.8**	**91.1**
2.4.6-Tribromophenol	118-79-6	0.5	%		**73.0**	**79.7**	**77.4**	**84.6**	**84.7**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**91.1**	**91.4**	**91.2**	**90.5**	**89.4**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T1-12	T1-13	T1-14	DT1	DT2
				Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1803452-019	EM1803452-020	EM1803452-021	EM1803452-022	EM1803452-023
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
Anthracene-d10	1719-06-8	0.5	%		111	105	105	105	98.9
4-Terphenyl-d14	1718-51-0	0.5	%		103	99.3	98.1	97.2	91.7
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		70.6	98.6	83.6	89.6	102
Toluene-D8	2037-26-5	0.2	%		78.8	108	90.6	100	117
4-Bromofluorobenzene	460-00-4	0.2	%		82.9	121	106	117	123

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	A1	A3-1	A3-2	A4	B1
			Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1803452-024	EM1803452-025	EM1803452-026	EM1803452-027	EM1803452-028
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**8.2**	**12.7**	**11.3**	**9.4**	**12.0**
EG005T: Total Metals by ICP-AES								
Lead	7439-92-1	5	mg/kg	**49**	**118**	**288**	**39**	**58**
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**0.5**
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	**0.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	A1	A3-1	A3-2	A4	B1
				Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1803452-024	EM1803452-025	EM1803452-026	EM1803452-027	EM1803452-028
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	90	50	<50	240
C15 - C28 Fraction	----	100	mg/kg		160	410	270	<100	820
C29 - C36 Fraction	----	100	mg/kg		120	370	370	<100	100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		280	870	690	<50	1160
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	140	70	<50	450
>C16 - C34 Fraction	----	100	mg/kg		240	640	520	<100	690
>C34 - C40 Fraction	----	100	mg/kg		<100	210	220	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		240	990	810	<50	1140
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	140	70	<50	450
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		98.9	97.1	93.7	109	106
2-Chlorophenol-D4	93951-73-6	0.5	%		100	100	97.4	115	110
2.4.6-Tribromophenol	118-79-6	0.5	%		96.0	104	107	99.3	110
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		116	115	114	121	112

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	A1	A3-1	A3-2	A4	B1
				Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1803452-024	EM1803452-025	EM1803452-026	EM1803452-027	EM1803452-028
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
Anthracene-d10	1719-06-8	0.5	%		**115**	**122**	**125**	**121**	**117**
4-Terphenyl-d14	1718-51-0	0.5	%		**121**	**119**	**116**	**122**	**124**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**85.6**	**83.3**	**71.3**	**91.2**	**88.4**
Toluene-D8	2037-26-5	0.2	%		**70.2**	**77.6**	**78.2**	**82.5**	**77.1**
4-Bromofluorobenzene	460-00-4	0.2	%		**111**	**106**	**105**	**114**	**101**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B5	B12-1	B12-2	B12-3	B16
			Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1803452-029	EM1803452-030	EM1803452-031	EM1803452-032	EM1803452-033
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**13.4**	**13.1**	**18.1**	**17.9**	**12.4**
EG005T: Total Metals by ICP-AES								
Lead	7439-92-1	5	mg/kg	**21**	**170**	**13**	**84**	**107**
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	**0.6**	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	**0.6**	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B5	B12-1	B12-2	B12-3	B16
				Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1803452-029	EM1803452-030	EM1803452-031	EM1803452-032	EM1803452-033
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		60	350	220	270	710
C15 - C28 Fraction	----	100	mg/kg		170	860	600	1230	2190
C29 - C36 Fraction	----	100	mg/kg		<100	200	<100	160	160
^ C10 - C36 Fraction (sum)	----	50	mg/kg		230	1410	820	1660	3060
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		90	580	380	580	1300
>C16 - C34 Fraction	----	100	mg/kg		160	790	470	1070	1740
>C34 - C40 Fraction	----	100	mg/kg		<100	100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		250	1470	850	1650	3040
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		90	580	380	580	1300
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		101	106	101	101	102
2-Chlorophenol-D4	93951-73-6	0.5	%		109	110	109	107	107
2.4.6-Tribromophenol	118-79-6	0.5	%		96.9	93.2	101	105	101
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		118	112	109	104	102

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B5	B12-1	B12-2	B12-3	B16
				Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1803452-029	EM1803452-030	EM1803452-031	EM1803452-032	EM1803452-033
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
Anthracene-d10	1719-06-8	0.5	%		**111**	**124**	**129**	**128**	**122**
4-Terphenyl-d14	1718-51-0	0.5	%		**122**	**122**	**121**	**119**	**122**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**89.4**	**82.2**	**81.3**	**88.7**	**85.6**
Toluene-D8	2037-26-5	0.2	%		**73.5**	**87.3**	**80.1**	**82.2**	**98.8**
4-Bromofluorobenzene	460-00-4	0.2	%		**104**	**108**	**111**	**116**	**122**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B20	----	----	----	----
			Client sampling date / time	20-Feb-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1803452-034	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**14.2**	----	----	----	----
EG005T: Total Metals by ICP-AES								
Lead	7439-92-1	5	mg/kg	**64**	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg	<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B20	----	----	----	----
				Client sampling date / time	20-Feb-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1803452-034	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		**820**	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		**2240**	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		**3060**	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		**1430**	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		**1710**	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		**3140**	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		**1430**	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**103**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**113**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**104**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**102**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B20	----	----	----	----
				Client sampling date / time	20-Feb-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1803452-034	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)T: PAH Surrogates - Continued									
Anthracene-d10	1719-06-8	0.5	%		**129**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**128**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**79.5**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		**85.9**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**122**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	TP6-water	T3-rainwater	trip blank	----	----
				Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1803452-001	EM1803452-002	EM1803452-003	--------	--------
					Result	Result	Result	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		**0.001**	**0.002**	----	----	----
Boron	7440-42-8	0.05	mg/L		<0.05	**0.07**	----	----	----
Barium	7440-39-3	0.001	mg/L		**0.131**	**0.140**	----	----	----
Beryllium	7440-41-7	0.001	mg/L		<0.001	**0.001**	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		**0.0001**	**0.0003**	----	----	----
Cobalt	7440-48-4	0.001	mg/L		**0.012**	**0.021**	----	----	----
Chromium	7440-47-3	0.001	mg/L		**0.011**	**0.011**	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.046**	**0.055**	----	----	----
Manganese	7439-96-5	0.001	mg/L		**0.363**	**0.537**	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.016**	**0.019**	----	----	----
Lead	7439-92-1	0.001	mg/L		**0.020**	**0.035**	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	----	----	----
Vanadium	7440-62-2	0.01	mg/L		**0.04**	**0.03**	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.095**	**0.258**	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	<1.0	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	<1.0	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	<1.0	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	<2.0	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	<1.0	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	<1.0	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	<1.0	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	<1.0	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	<1.0	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	<1.0	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	<1.0	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	<2.0	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	TP6-water	T3-rainwater	trip blank	----	----
				Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1803452-001	EM1803452-002	EM1803452-003	--------	--------
					Result	Result	Result	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L		<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L		**160**	**840**	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	**90**	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		**160**	**930**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	<20	<20	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L		**170**	**860**	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		**170**	**860**	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	<100	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	----	----
Toluene	108-88-3	2	µg/L		<2	<2	<2	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	TP6-water	T3-rainwater	trip blank	----	----
				Client sampling date / time	20-Feb-2018 00:00	20-Feb-2018 00:00	20-Feb-2018 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1803452-001	EM1803452-002	EM1803452-003	--------	--------
					Result	Result	Result	----	----
EP080: BTEXN - Continued									
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	----	----
^ Total Xylenes	----	2	µg/L		<2	<2	<2	----	----
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		35.2	29.0	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		90.2	76.3	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		102	100	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		100	92.5	----	----	----
Anthracene-d10	1719-06-8	1.0	%		103	97.5	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		101	104	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		98.8	95.1	99.6	----	----
Toluene-D8	2037-26-5	2	%		95.1	95.0	94.7	----	----
4-Bromofluorobenzene	460-00-4	2	%		111	110	112	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	46
2-Chlorophenol-D4	93951-73-6	23	104
2.4.6-Tribromophenol	118-79-6	28	130
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	36	114
Anthracene-d10	1719-06-8	51	119
4-Terphenyl-d14	1718-51-0	49	127
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1806900**	Page	: 1 of 3
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI	Date Samples Received	: 26-Apr-2018 11:40
Order number	: 4193.005	Date Analysis Commenced	: 27-Apr-2018
C-O-C number	: ----	Issue Date	: 01-May-2018 09:41
Sampler	: FIONA KESERUE-PONTE		
Site	: ----		
Quote number	: EN/222/17		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Emily Daos	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Ch' Chrysotile (white asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA156: Friability is assessed by crushing using finger pressure as defined under WorkSafe Australia regulations
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- ALS is not NATA accredited for the analysis of EA156 - Friability

Analytical Results

Sub-Matrix: **SOLID** (Matrix: **SOLID**)			Client sample ID	**ACM1**	**ACM2**	**ACM3**	**----**	**----**
			Client sampling date / time	31-Jan-2018 00:00	31-Jan-2018 00:00	31-Jan-2018 00:00	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**EM1806900-001**	**EM1806900-002**	**EM1806900-003**	**--------**	**--------**
				Result	Result	Result	----	----
EA156: Friable Materials								
ø **Friable Materials (>7mm)**	----	-	-	**No**	**No**	**Yes**	**----**	**----**
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	**Yes**	**Yes**	**No**	**----**	**----**
Asbestos Type	1332-21-4	-	--	**Ch+Am+Cr**	**Ch+Am+Cr**	**-**	**----**	**----**
Sample weight (dry)	----	0.01	g	**112**	**35.1**	**43.2**	**----**	**----**
APPROVED IDENTIFIER:	----	-	--	**E.DAOS**	**E.DAOS**	**E.DAOS**	**----**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **SOLID**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples		
EA200: Description	ACM1 - 31-Jan-2018 00:00	Asbestos cement sheeting fragment approx 160 x 80 x 4mm.
EA200: Description	ACM2 - 31-Jan-2018 00:00	Asbestos cement sheeting fragment approx 85 x 47 x 5mm.
EA200: Description	ACM3 - 31-Jan-2018 00:00	Organic fibre board fragments approx 60 x 45 x 4mm.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1808830**	Page	: 1 of 12
Amendment	: **1**		
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI - Remediation	Date Samples Received	: 04-Jun-2018 10:50
Order number	: 4193.005	Date Analysis Commenced	: 04-Jun-2018
C-O-C number	: ----	Issue Date	: 27-Jun-2018 15:45
Sampler	: FKP		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 33		
No. of samples analysed	: 33		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Amendment (14/06/18): This report has been amended and re-released to allow the reporting of additional analytical data.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP10V-01	TP10V-02	TP10V-03	TP10V-04	TP10V-05
			Client sampling date / time	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00
Compound	CAS Number	LOR	Unit	EM1808830-002	EM1808830-003	EM1808830-004	EM1808830-005	EM1808830-006
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	13.5	9.8	9.6	10.0	16.0
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	88.7	83.5	88.0	80.6	85.1
Toluene-D8	2037-26-5	0.2	%	91.8	91.1	92.7	83.6	83.5
4-Bromofluorobenzene	460-00-4	0.2	%	119	113	114	105	106

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP10V-06	Trip1.1 30.5	TP10V-07	TP10V-08	TP10V-09
			Client sampling date / time	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00
Compound	CAS Number	LOR	Unit	EM1808830-007	EM1808830-008	EM1808830-009	EM1808830-010	EM1808830-011
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**15.5**	**17.3**	**16.3**	**14.8**	**11.4**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**76.8**	**75.8**	**88.6**	**73.6**	**76.9**
Toluene-D8	2037-26-5	0.2	%	**77.0**	**76.3**	**91.4**	**73.9**	**79.5**
4-Bromofluorobenzene	460-00-4	0.2	%	**97.2**	**87.4**	**114**	**96.3**	**96.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP10V-10	TP10V-11	TP10V-12	TP10V-13	TP10V-14
			Client sampling date / time	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00
Compound	CAS Number	LOR	Unit	EM1808830-012	EM1808830-013	EM1808830-014	EM1808830-015	EM1808830-016
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**11.6**	**8.1**	**12.6**	**11.5**	**7.5**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	**120**	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	**120**	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**90.1**	**81.2**	**79.3**	**73.7**	**89.3**
Toluene-D8	2037-26-5	0.2	%	**88.6**	**81.1**	**81.3**	**75.4**	**91.4**
4-Bromofluorobenzene	460-00-4	0.2	%	**110**	**101**	**96.5**	**92.4**	**111**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP10V-15	TP10V-16	TP10V-17	TP10V-18	TP10V-19
			Client sampling date / time	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00
Compound	CAS Number	LOR	Unit	EM1808830-017	EM1808830-018	EM1808830-019	EM1808830-020	EM1808830-021
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	7.4	9.9	7.4	10.6	15.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	610	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	110	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	720	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	110	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	600	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	710	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	110	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	87.8	72.5	83.7	79.3	62.8
Toluene-D8	2037-26-5	0.2	%	80.6	71.0	83.0	79.7	61.6
4-Bromofluorobenzene	460-00-4	0.2	%	99.4	85.4	96.8	90.2	88.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP10V-20	TP10V-21	FILL1	FILL2	FILL3
			Client sampling date / time	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00
Compound	CAS Number	LOR	Unit	EM1808830-022	EM1808830-023	EM1808830-024	EM1808830-025	EM1808830-026
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	11.2	7.6	7.2	14.3	6.9
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	No	No	No
Asbestos (Trace)	1332-21-4	5	Fibres	----	----	No	No	No
Asbestos Type	1332-21-4	-	--	----	----	-	-	-
Sample weight (dry)	----	0.01	g	----	----	11700	9530	9530
APPROVED IDENTIFIER:	----	-	--	----	----	S.SPOONER	S.SPOONER	S.SPOONER
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	----	----	<0.0004	<0.0004	<0.0004
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	----	----	<0.001	<0.001	<0.001
ø Asbestos Containing Material	1332-21-4	0.1	g	----	----	<0.1	<0.1	<0.1
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	----	----	<0.01	<0.01	<0.01
ø Weight Used for % Calculation	----	0.0001	kg	----	----	11.7	9.53	9.53
ø Fibrous Asbestos >7mm	----	0.0004	g	----	----	<0.0004	<0.0004	<0.0004
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	----	<5	<5	<5
Barium	7440-39-3	10	mg/kg	----	----	120	310	100
Beryllium	7440-41-7	1	mg/kg	----	----	<1	<1	<1
Boron	7440-42-8	50	mg/kg	----	----	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	----	----	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	----	----	8	11	4
Cobalt	7440-48-4	2	mg/kg	----	----	9	7	4
Copper	7440-50-8	5	mg/kg	----	----	27	26	10
Lead	7439-92-1	5	mg/kg	----	----	141	203	38
Manganese	7439-96-5	5	mg/kg	----	----	276	250	243
Nickel	7440-02-0	2	mg/kg	----	----	11	7	6
Selenium	7782-49-2	5	mg/kg	----	----	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	----	----	25	26	11
Zinc	7440-66-6	5	mg/kg	----	----	184	630	70
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	----	1.1	0.8	0.2
EP080/071: Total Petroleum Hydrocarbons								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP10V-20	TP10V-21	FILL1	FILL2	FILL3
				Client sampling date / time	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00
Compound	CAS Number	LOR	Unit		EM1808830-022	EM1808830-023	EM1808830-024	EM1808830-025	EM1808830-026
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**72.0**	**65.0**	----	----	----
Toluene-D8	2037-26-5	0.2	%		**75.0**	**61.1**	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**96.9**	**84.7**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	FILL4	FILL5	FILL6	FILL7	FILL8
			Client sampling date / time	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00	30-May-2018 00:00
Compound	CAS Number	LOR	Unit	EM1808830-027	EM1808830-028	EM1808830-029	EM1808830-030	EM1808830-031
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	11.0	9.8	18.9	11.7	12.4
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	No	No	No
Asbestos (Trace)	1332-21-4	5	Fibres	No	No	No	No	No
Asbestos Type	1332-21-4	-	--	-	-	-	-	-
Sample weight (dry)	----	0.01	g	6140	6970	7930	8240	8630
APPROVED IDENTIFIER:	----	-	--	G.MORGAN	G.MORGAN	G.MORGAN	S.SPOONER	S.SPOONER
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	<0.1	<0.1	<0.1	<0.1
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
ø Weight Used for % Calculation	----	0.0001	kg	6.14	6.97	7.93	8.24	8.63
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	120	60	130	80	60
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	8	6	8	7	7
Cobalt	7440-48-4	2	mg/kg	8	8	7	6	5
Copper	7440-50-8	5	mg/kg	40	37	36	28	16
Lead	7439-92-1	5	mg/kg	127	53	234	76	68
Manganese	7439-96-5	5	mg/kg	409	303	359	225	157
Nickel	7440-02-0	2	mg/kg	10	8	8	8	6
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	25	32	31	23	28
Zinc	7440-66-6	5	mg/kg	290	83	275	188	82
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	2.8	0.2	0.4	<0.1	<0.1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	ACM-SP1	SP-MET	----	----	----
			Client sampling date / time	30-May-2018 00:00	30-May-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1808830-032	EM1808830-033	--------	--------	--------
				Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**9.4**	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**No**	**No**	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	**No**	**No**	----	----	----
Asbestos Type	1332-21-4	-	--	**-**	**-**	----	----	----
Sample weight (dry)	----	0.01	g	**8060**	**12800**	----	----	----
APPROVED IDENTIFIER:	----	-	--	**S.SPOONER**	**S.SPOONER**	----	----	----
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	<0.0004	----	----	----
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	<0.001	----	----	----
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	<0.1	----	----	----
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	<0.01	----	----	----
ø Weight Used for % Calculation	----	0.0001	kg	**8.06**	**12.8**	----	----	----
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	<0.0004	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Barium	7440-39-3	10	mg/kg	**180**	----	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	----
Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**7**	----	----	----	----
Cobalt	7440-48-4	2	mg/kg	**8**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**30**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**265**	----	----	----	----
Manganese	7439-96-5	5	mg/kg	**278**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**9**	----	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	**24**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**174**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	**1.3**	----	----	----	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Client sample ID	Trip Blank	----	----	----	----
				Client sampling date / time	30-May-2018 00:00	----	----	----	----
				EM1808830-001	--------	--------	--------	--------	--------
				Result	----	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**100**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**110**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**108**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	FILL1 - 30-May-2018 00:00	Mid brown sandy soil with some building debris
EA200: Description	FILL2 - 30-May-2018 00:00	Mid brown sandy soil with some building debris
EA200: Description	FILL3 - 30-May-2018 00:00	Mid brown sandy soil with some building debris
EA200: Description	FILL4 - 30-May-2018 00:00	Mid brown sandy soil with some building debris
EA200: Description	FILL5 - 30-May-2018 00:00	Mid brown sandy soil with some building debris
EA200: Description	FILL6 - 30-May-2018 00:00	Mid brown sandy soil with some building debris
EA200: Description	FILL7 - 30-May-2018 00:00	Mid brown sandy soil with some building debris
EA200: Description	FILL8 - 30-May-2018 00:00	Mid brown sandy soil with some building debris
EA200: Description	ACM-SP1 - 30-May-2018 00:00	Mid brown sandy soil with some building debris
EA200: Description	SP-MET - 30-May-2018 00:00	Mid brown sandy soil with some building debris

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1808910**	Page	: 1 of 8
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI	Date Samples Received	: 31-May-2018 09:40
Order number	: 4193.005	Date Analysis Commenced	: 01-Jun-2018
C-O-C number	: ----	Issue Date	: 06-Jun-2018 15:35
Sampler	: FIONA KESERUE-PONTE		
Site	:		
Quote number	: ME/463/17		
No. of samples received	: 11		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SV1	SV2	SV3	SV4	SV5
			Client sampling date / time	28-May-2018 00:00	28-May-2018 00:00	28-May-2018 00:00	28-May-2018 00:00	28-May-2018 00:00
Compound	CAS Number	LOR	Unit	EM1808910-003	EM1808910-004	EM1808910-005	EM1808910-006	EM1808910-007
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**6.9**	**16.2**	**14.0**	**4.3**	**10.2**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	**140**	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	**150**	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	**290**	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	**150**	**240**	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	**150**	**240**	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**76.5**	**77.4**	**74.7**	**60.8**	**73.8**
Toluene-D8	2037-26-5	0.2	%	**93.9**	**82.6**	**90.6**	**109**	**89.5**
4-Bromofluorobenzene	460-00-4	0.2	%	**103**	**91.5**	**100**	**119**	**105**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SV6	Vtripl 1	T14-03-v01	SP-MET	----
			Client sampling date / time	28-May-2018 00:00	28-May-2018 00:00	28-May-2018 00:00	28-May-2018 00:00	----
Compound	CAS Number	LOR	Unit	EM1808910-008	EM1808910-009	EM1808910-010	EM1808910-011	--------
				Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	5.3	4.5	17.8	22.7	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	----	<5	<5	----
Barium	7440-39-3	10	mg/kg	----	----	40	170	----
Beryllium	7440-41-7	1	mg/kg	----	----	<1	<1	----
Boron	7440-42-8	50	mg/kg	----	----	<50	<50	----
Cadmium	7440-43-9	1	mg/kg	----	----	<1	<1	----
Chromium	7440-47-3	2	mg/kg	----	----	6	7	----
Cobalt	7440-48-4	2	mg/kg	----	----	3	5	----
Copper	7440-50-8	5	mg/kg	----	----	<5	18	----
Lead	7439-92-1	5	mg/kg	----	----	8	265	----
Manganese	7439-96-5	5	mg/kg	----	----	54	207	----
Nickel	7440-02-0	2	mg/kg	----	----	4	6	----
Selenium	7782-49-2	5	mg/kg	----	----	<5	<5	----
Vanadium	7440-62-2	5	mg/kg	----	----	24	15	----
Zinc	7440-66-6	5	mg/kg	----	----	9	327	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	----	<0.1	1.3	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SV6	Vtripl 1	T14-03-v01	SP-MET	----
			Client sampling date / time	28-May-2018 00:00	28-May-2018 00:00	28-May-2018 00:00	28-May-2018 00:00	----
Compound	CAS Number	LOR	Unit	EM1808910-008	EM1808910-009	EM1808910-010	EM1808910-011	--------
				Result	Result	Result	Result	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	<0.2	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**72.5**	**75.7**	----	----	----
Toluene-D8	2037-26-5	0.2	%	**94.5**	**92.9**	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	**91.0**	**105**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	rinsate-trowel	trip blank	----	----	----
				Client sampling date / time	28-May-2018 00:00	28-May-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1808910-001	EM1808910-002	--------	--------	--------
					Result	Result	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Boron	7440-42-8	0.05	mg/L		<0.05	----	----	----	----
Barium	7440-39-3	0.001	mg/L		<0.001	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	rinsate-trowel	trip blank	----	----	----
				Client sampling date / time	28-May-2018 00:00	28-May-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1808910-001	EM1808910-002	--------	--------	--------
					Result	Result	----	----	----
EP080: BTEXN - Continued									
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**99.0**	**90.7**	----	----	----
Toluene-D8	2037-26-5	2	%		**93.2**	**90.7**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**96.8**	**111**	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1809075**	Page	: 1 of 15
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI	Date Samples Received	: 05-Jun-2018 11:10
Order number	: 4193.005	Date Analysis Commenced	: 06-Jun-2018
C-O-C number	: ----	Issue Date	: 13-Jun-2018 15:49
Sampler	: FKP		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 12		
No. of samples analysed	: 12		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	trip blank	Tripl 1	C1	C2	C3
			Client sampling date / time	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00
Compound	CAS Number	LOR	Unit	EM1809075-001	EM1809075-002	EM1809075-003	EM1809075-004	EM1809075-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	<1.0	13.7	13.7	16.9	16.4
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	<5	----	----	----
Barium	7440-39-3	10	mg/kg	----	170	----	----	----
Beryllium	7440-41-7	1	mg/kg	----	<1	----	----	----
Cadmium	7440-43-9	1	mg/kg	----	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	----	14	----	----	----
Cobalt	7440-48-4	2	mg/kg	----	9	----	----	----
Copper	7440-50-8	5	mg/kg	----	23	----	----	----
Lead	7439-92-1	5	mg/kg	----	186	----	----	----
Manganese	7439-96-5	5	mg/kg	----	370	----	----	----
Molybdenum	7439-98-7	2	mg/kg	----	<2	----	----	----
Nickel	7440-02-0	2	mg/kg	----	10	----	----	----
Selenium	7782-49-2	5	mg/kg	----	<5	----	----	----
Silver	7440-22-4	2	mg/kg	----	<2	----	----	----
Tin	7440-31-5	5	mg/kg	----	6	----	----	----
Zinc	7440-66-6	5	mg/kg	----	175	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	0.9	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	----	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	----	<1	----	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	----	50	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	----	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	trip blank	Tripl 1	C1	C2	C3
				Client sampling date / time	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00
Compound	CAS Number	LOR	Unit		EM1809075-001	EM1809075-002	EM1809075-003	EM1809075-004	EM1809075-005
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Aldrin	309-00-2	0.05	mg/kg		----	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	<0.05	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		----	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg		----	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	<0.05	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	<0.05	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		----	<2	----	----	----
^ Sum of Phenols	----	0.5	mg/kg		----	<0.5	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	trip blank	Tripl 1	C1	C2	C3
			Client sampling date / time	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00
Compound	CAS Number	LOR	Unit	EM1809075-001	EM1809075-002	EM1809075-003	EM1809075-004	EM1809075-005
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	**0.6**	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	**1.2**	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons								
Benzo(a)pyrene	50-32-8	0.05	mg/kg	----	<0.05	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	----	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	----	**120**	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	----	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	**120**	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	----	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	----	**170**	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	----	<100	<100	<100	<100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	trip blank	Tripl 1	C1	C2	C3
				Client sampling date / time	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00
Compound	CAS Number	LOR	Unit		EM1809075-001	EM1809075-002	EM1809075-003	EM1809075-004	EM1809075-005
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	170	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	71.5	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	95.7	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	109	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	75.9	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		----	88.9	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		----	58.2	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	99.4	----	----	----
Anthracene-d10	1719-06-8	0.5	%		----	101	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		----	103	----	----	----
EP075T: Base/Neutral Extractable Surrogates									
2-Fluorobiphenyl	321-60-8	0.025	%		----	108	----	----	----
Anthracene-d10	1719-06-8	0.025	%		----	108	----	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		----	122	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		76.8	----	69.4	78.2	74.4
Toluene-D8	2037-26-5	0.2	%		77.4	----	66.6	76.4	75.2
4-Bromofluorobenzene	460-00-4	0.2	%		109	----	105	109	108

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	C4	E1	D1	D2	D3
			Client sampling date / time	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00
Compound	CAS Number	LOR	Unit	EM1809075-006	EM1809075-007	EM1809075-008	EM1809075-009	EM1809075-010
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	16.0	10.1	11.2	13.9	9.3
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	----	<5	<5	<5
Barium	7440-39-3	10	mg/kg	----	----	80	140	50
Beryllium	7440-41-7	1	mg/kg	----	----	<1	<1	<1
Cadmium	7440-43-9	1	mg/kg	----	----	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	----	----	14	5	5
Cobalt	7440-48-4	2	mg/kg	----	----	8	5	4
Copper	7440-50-8	5	mg/kg	----	----	21	20	12
Lead	7439-92-1	5	mg/kg	----	----	82	268	30
Manganese	7439-96-5	5	mg/kg	----	----	263	265	193
Molybdenum	7439-98-7	2	mg/kg	----	----	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	----	----	10	8	5
Selenium	7782-49-2	5	mg/kg	----	----	<5	<5	<5
Silver	7440-22-4	2	mg/kg	----	----	<2	<2	<2
Tin	7440-31-5	5	mg/kg	----	----	5	17	6
Zinc	7440-66-6	5	mg/kg	----	----	114	210	77
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	----	0.4	1.2	0.3
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	----	----	<1	1	<1
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	----	----	60	40	<40
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	C4	E1	D1	D2	D3
				Client sampling date / time	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00
Compound	CAS Number	LOR	Unit		EM1809075-006	EM1809075-007	EM1809075-008	EM1809075-009	EM1809075-010
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Aldrin	309-00-2	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		----	----	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		----	----	<2	<2	<2
^ Sum of Phenols	----	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	C4	E1	D1	D2	D3
			Client sampling date / time	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00
Compound	CAS Number	LOR	Unit	EM1809075-006	EM1809075-007	EM1809075-008	EM1809075-009	EM1809075-010
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Naphthalene	91-20-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	**1.2**	**1.2**	**1.2**
EP075B: Polynuclear Aromatic Hydrocarbons								
Benzo(a)pyrene	50-32-8	0.05	mg/kg	----	----	**0.08**	**0.06**	**0.10**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	**200**	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	**4900**	**110**	<100	**500**
C29 - C36 Fraction	----	100	mg/kg	<100	**3240**	<100	<100	**360**
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	**8340**	**110**	<50	**860**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	**330**	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	**7090**	**110**	<100	**770**
>C34 - C40 Fraction	----	100	mg/kg	<100	**1490**	<100	<100	**160**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	C4	E1	D1	D2	D3
				Client sampling date / time	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00	01-Jun-2018 00:00
Compound	CAS Number	LOR	Unit		EM1809075-006	EM1809075-007	EM1809075-008	EM1809075-009	EM1809075-010
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	**8910**	**110**	<50	**930**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	**330**	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	**85.0**	**86.5**	**87.8**
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	**89.7**	**90.3**	**77.9**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	**124**	**120**	**116**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	----	**88.0**	**89.5**	**89.4**
2-Chlorophenol-D4	93951-73-6	0.5	%		----	----	**87.4**	**89.0**	**89.1**
2.4.6-Tribromophenol	118-79-6	0.5	%		----	----	**70.0**	**72.6**	**73.3**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	----	**87.6**	**88.4**	**87.7**
Anthracene-d10	1719-06-8	0.5	%		----	----	**99.9**	**107**	**99.2**
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	**96.0**	**96.3**	**95.3**
EP075T: Base/Neutral Extractable Surrogates									
2-Fluorobiphenyl	321-60-8	0.025	%		----	----	**102**	**118**	**108**
Anthracene-d10	1719-06-8	0.025	%		----	----	**104**	**113**	**101**
4-Terphenyl-d14	1718-51-0	0.025	%		----	----	**117**	**127**	**116**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**74.7**	**70.0**	**67.7**	**70.1**	**71.8**
Toluene-D8	2037-26-5	0.2	%		**75.5**	**72.8**	**67.2**	**64.0**	**77.6**
4-Bromofluorobenzene	460-00-4	0.2	%		**110**	**105**	**95.8**	**97.3**	**108**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	D4	D5	----	----	----
			Client sampling date / time	01-Jun-2018 00:00	01-Jun-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1809075-011	EM1809075-012	--------	--------	--------
				Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**13.2**	**13.6**	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	----
Barium	7440-39-3	10	mg/kg	**50**	**60**	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	**6**	**5**	----	----	----
Cobalt	7440-48-4	2	mg/kg	**5**	**5**	----	----	----
Copper	7440-50-8	5	mg/kg	**13**	**14**	----	----	----
Lead	7439-92-1	5	mg/kg	**28**	**17**	----	----	----
Manganese	7439-96-5	5	mg/kg	**249**	**172**	----	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	----	----	----
Nickel	7440-02-0	2	mg/kg	**8**	**7**	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	----	----	----
Silver	7440-22-4	2	mg/kg	<2	<2	----	----	----
Tin	7440-31-5	5	mg/kg	<5	<5	----	----	----
Zinc	7440-66-6	5	mg/kg	**41**	**37**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	----	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	**50**	**50**	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	D4	D5	----	----	----
				Client sampling date / time	01-Jun-2018 00:00	01-Jun-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1809075-011	EM1809075-012	--------	--------	--------
					Result	Result	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	----	----	----
^ Sum of Phenols	----	0.5	mg/kg		<0.5	<0.5	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	D4	D5	----	----	----
			Client sampling date / time	01-Jun-2018 00:00	01-Jun-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1809075-011	EM1809075-012	--------	--------	--------
				Result	Result	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons								
Benzo(a)pyrene	50-32-8	0.05	mg/kg	<0.05	<0.05	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg	**550**	**250**	----	----	----
C29 - C36 Fraction	----	100	mg/kg	**510**	**180**	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	**1060**	**430**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	**940**	**380**	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	**210**	<100	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	D4	D5	----	----	----
				Client sampling date / time	01-Jun-2018 00:00	01-Jun-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1809075-011	EM1809075-012	--------	--------	--------
					Result	Result	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		1150	380	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		88.2	85.8	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		75.9	78.6	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		109	119	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		87.9	109	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		88.3	109	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		76.0	102	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		86.2	110	----	----	----
Anthracene-d10	1719-06-8	0.5	%		104	126	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		93.6	118	----	----	----
EP075T: Base/Neutral Extractable Surrogates									
2-Fluorobiphenyl	321-60-8	0.025	%		107	108	----	----	----
Anthracene-d10	1719-06-8	0.025	%		107	109	----	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		121	121	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		67.4	72.7	----	----	----
Toluene-D8	2037-26-5	0.2	%		66.1	73.5	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		98.6	106	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	36	140
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	38	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	33	139
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP075T: Base/Neutral Extractable Surrogates			
2-Fluorobiphenyl	321-60-8	35	126
Anthracene-d10	1719-06-8	40	135
4-Terphenyl-d14	1718-51-0	42	133
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1810131**	Page	: 1 of 6
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI - Remediation	Date Samples Received	: 25-Jun-2018 23:20
Order number	: 4193.005	Date Analysis Commenced	: 26-Jun-2018
C-O-C number	: ----	Issue Date	: 02-Jul-2018 13:27
Sampler	: FIONA KESERUE-PONTE		
Site	: ----		
Quote number	: EN/222/17		
No. of samples received	: 10		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Triplicate 1	Trench 1a	Trench 1b	Trench 2a	Trench 3a
			Client sampling date / time	21-Jun-2018 00:00	21-Jun-2018 00:00	21-Jun-2018 00:00	21-Jun-2018 00:00	21-Jun-2018 00:00
Compound	CAS Number	LOR	Unit	EM1810131-002	EM1810131-003	EM1810131-004	EM1810131-005	EM1810131-006
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	9.3	10.0	8.6	16.2	18.3
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	63.1	77.4	78.8	100.0	74.8
Toluene-D8	2037-26-5	0.2	%	59.4	74.3	73.8	99.5	74.0
4-Bromofluorobenzene	460-00-4	0.2	%	71.6	87.6	87.0	114	88.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Trench 3b	Trench 3c	Trench 4a	Trench 4b	----
			Client sampling date / time	21-Jun-2018 00:00	21-Jun-2018 00:00	21-Jun-2018 00:00	21-Jun-2018 00:00	----
Compound	CAS Number	LOR	Unit	EM1810131-007	EM1810131-008	EM1810131-009	EM1810131-010	--------
				Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**15.3**	**15.5**	**15.5**	**14.2**	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**74.6**	**82.1**	**74.2**	**75.3**	----
Toluene-D8	2037-26-5	0.2	%	**70.2**	**75.6**	**66.8**	**66.9**	----
4-Bromofluorobenzene	460-00-4	0.2	%	**83.7**	**90.3**	**82.6**	**83.4**	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Trip Blank	----	----	----	----
				Client sampling date / time	21-Jun-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1810131-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**93.8**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**95.3**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**115**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1814835**	Page	: 1 of 14
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI	Date Samples Received	: 14-Sep-2018 09:45
Order number	: 4193.005	Date Analysis Commenced	: 17-Sep-2018
C-O-C number	: ----	Issue Date	: 21-Sep-2018 12:46
Sampler	: FIONA KESERUE-PONTE		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 26		
No. of samples analysed	: 26		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Triplicate 1	Duplicate 1	TR5-01	TR5-02	TR5-03
			Client sampling date / time	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00
Compound	CAS Number	LOR	Unit	EM1814835-002	EM1814835-003	EM1814835-004	EM1814835-005	EM1814835-006
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	20.0	15.4	8.4	7.6	16.9
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	40	40	30	50	130
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	11	5	6	8	7
Cobalt	7440-48-4	2	mg/kg	11	5	7	12	6
Copper	7440-50-8	5	mg/kg	<5	5	34	66	37
Lead	7439-92-1	5	mg/kg	14	10	11	36	159
Manganese	7439-96-5	5	mg/kg	55	68	284	372	250
Nickel	7440-02-0	2	mg/kg	8	5	10	14	9
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	23	14	25	40	22
Zinc	7440-66-6	5	mg/kg	26	62	33	76	189
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	0.3	0.4
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup								
>C10 - C16 Fraction	----	50	mg/kg	----	----	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg	----	----	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg	----	----	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	----	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	----	----	<50
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup								
C10 - C14 Fraction	----	50	mg/kg	----	----	----	----	<50
C15 - C28 Fraction	----	100	mg/kg	----	----	----	----	<100
C29 - C36 Fraction	----	100	mg/kg	----	----	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	----	----	<50
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	Triplicate 1	Duplicate 1	TR5-01	TR5-02	TR5-03
				Client sampling date / time	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		EM1814835-002	EM1814835-003	EM1814835-004	EM1814835-005	EM1814835-006
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**68.5**	**71.1**	**67.9**	**76.4**	**70.7**
Toluene-D8	2037-26-5	0.2	%		**65.1**	**67.0**	**65.8**	**74.5**	**64.2**
4-Bromofluorobenzene	460-00-4	0.2	%		**74.2**	**73.6**	**69.4**	**79.4**	**72.8**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TR5-04	TR5-05	TR6-01	TR6-02	TR6-03
			Client sampling date / time	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00
Compound	CAS Number	LOR	Unit	EM1814835-007	EM1814835-008	EM1814835-009	EM1814835-010	EM1814835-011
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	21.0	23.5	14.7	12.0	18.7
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	30	60	160	20	160
Beryllium	7440-41-7	1	mg/kg	1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	13	12	6	4	10
Cobalt	7440-48-4	2	mg/kg	13	11	5	3	5
Copper	7440-50-8	5	mg/kg	6	<5	33	<5	28
Lead	7439-92-1	5	mg/kg	12	20	245	8	139
Manganese	7439-96-5	5	mg/kg	61	45	332	48	297
Nickel	7440-02-0	2	mg/kg	9	9	5	4	6
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	22	28	16	10	24
Zinc	7440-66-6	5	mg/kg	31	25	155	16	161
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.6	<0.1	0.4
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup								
>C10 - C16 Fraction	----	50	mg/kg	----	----	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg	----	----	<100	----	<100
>C34 - C40 Fraction	----	100	mg/kg	----	----	<100	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	<50	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	<50	----	<50
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup								
C10 - C14 Fraction	----	50	mg/kg	----	----	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg	----	----	<100	----	<100
C29 - C36 Fraction	----	100	mg/kg	----	----	<100	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	<50	----	<50
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	<50	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	<100	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TR5-04	TR5-05	TR6-01	TR6-02	TR6-03
			Client sampling date / time	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00
Compound	CAS Number	LOR	Unit	EM1814835-007	EM1814835-008	EM1814835-009	EM1814835-010	EM1814835-011
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	----	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	<50	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**80.1**	**73.8**	**75.7**	**72.0**	**71.2**
Toluene-D8	2037-26-5	0.2	%	**81.7**	**73.1**	**75.1**	**66.5**	**68.2**
4-Bromofluorobenzene	460-00-4	0.2	%	**84.4**	**75.6**	**77.2**	**72.7**	**75.7**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TR6-04	TR6-05	TR6-06	TR6-07	TR6-08
			Client sampling date / time	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00
Compound	CAS Number	LOR	Unit	EM1814835-012	EM1814835-013	EM1814835-014	EM1814835-015	EM1814835-016
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	18.6	4.4	12.1	9.3	16.3
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	5	<5	<5
Barium	7440-39-3	10	mg/kg	20	20	110	40	50
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	5	9	8	7	6
Cobalt	7440-48-4	2	mg/kg	5	14	9	11	6
Copper	7440-50-8	5	mg/kg	<5	79	40	56	7
Lead	7439-92-1	5	mg/kg	<5	<5	114	21	107
Manganese	7439-96-5	5	mg/kg	57	416	262	316	110
Nickel	7440-02-0	2	mg/kg	5	23	14	16	5
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	12	47	27	34	18
Zinc	7440-66-6	5	mg/kg	12	26	100	55	87
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TR6-04	TR6-05	TR6-06	TR6-07	TR6-08
			Client sampling date / time	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00
Compound	CAS Number	LOR	Unit	EM1814835-012	EM1814835-013	EM1814835-014	EM1814835-015	EM1814835-016
				Result	Result	Result	Result	Result
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**72.3**	**73.8**	**73.8**	**77.7**	**67.2**
Toluene-D8	2037-26-5	0.2	%	**65.6**	**71.2**	**63.6**	**70.8**	**61.4**
4-Bromofluorobenzene	460-00-4	0.2	%	**76.8**	**80.1**	**77.1**	**82.5**	**72.6**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TR6-09	TR6-10	TR6-11	TR6-SP1	L3-12.9.18
			Client sampling date / time	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00
Compound	CAS Number	LOR	Unit	EM1814835-017	EM1814835-018	EM1814835-019	EM1814835-020	EM1814835-021
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	14.4	13.1	9.7	12.7	12.4
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	70	20	40	60	40
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	9	4	6	6	4
Cobalt	7440-48-4	2	mg/kg	7	4	5	7	5
Copper	7440-50-8	5	mg/kg	18	<5	8	26	8
Lead	7439-92-1	5	mg/kg	13	5	19	30	7
Manganese	7439-96-5	5	mg/kg	82	51	93	197	110
Nickel	7440-02-0	2	mg/kg	8	4	5	8	4
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	25	11	12	20	12
Zinc	7440-66-6	5	mg/kg	105	10	29	58	22
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	260	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	930	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	1190	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	550	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	610	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	1160	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	550	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TR6-09	TR6-10	TR6-11	TR6-SP1	L3-12.9.18
			Client sampling date / time	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00
Compound	CAS Number	LOR	Unit	EM1814835-017	EM1814835-018	EM1814835-019	EM1814835-020	EM1814835-021
				Result	Result	Result	Result	Result
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**71.1**	**82.1**	**75.9**	**70.2**	**72.6**
Toluene-D8	2037-26-5	0.2	%	**64.9**	**71.9**	**70.2**	**63.0**	**65.0**
4-Bromofluorobenzene	460-00-4	0.2	%	**78.2**	**86.4**	**78.6**	**77.3**	**78.6**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SWP01	SWP02	SWP03	SWP04	SWP05
			Client sampling date / time	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00
Compound	CAS Number	LOR	Unit	EM1814835-022	EM1814835-023	EM1814835-024	EM1814835-025	EM1814835-026
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	7.6	13.0	14.7	22.6	11.8
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	40	20	30	80	40
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	6	4	2	12	5
Cobalt	7440-48-4	2	mg/kg	8	4	<2	3	5
Copper	7440-50-8	5	mg/kg	37	11	<5	5	13
Lead	7439-92-1	5	mg/kg	6	25	8	28	13
Manganese	7439-96-5	5	mg/kg	315	104	69	23	132
Nickel	7440-02-0	2	mg/kg	10	7	2	4	6
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	23	13	5	23	16
Zinc	7440-66-6	5	mg/kg	18	14	20	11	23
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	150
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	160
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	310
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	280
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	280
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SWP01	SWP02	SWP03	SWP04	SWP05
			Client sampling date / time	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00	12-Sep-2018 00:00
Compound	CAS Number	LOR	Unit	EM1814835-022	EM1814835-023	EM1814835-024	EM1814835-025	EM1814835-026
				Result	Result	Result	Result	Result
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**79.8**	**88.6**	**79.8**	**75.6**	**83.8**
Toluene-D8	2037-26-5	0.2	%	**66.1**	**73.3**	**67.7**	**68.1**	**67.4**
4-Bromofluorobenzene	460-00-4	0.2	%	**78.9**	**84.2**	**69.1**	**91.6**	**79.3**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Trip blank	----	----	----	----
				Client sampling date / time	12-Sep-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1814835-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**91.9**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**86.9**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**108**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1817751**	Page	: 1 of 12
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +6138549 9630
Project	: Oatlands DSI	Date Samples Received	: 02-Nov-2018 11:40
Order number	: 4193.005	Date Analysis Commenced	: 05-Nov-2018
C-O-C number	: ----	Issue Date	: 12-Nov-2018 16:07
Sampler	: FIONA KESERUE-PONTE		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 19		
No. of samples analysed	: 19		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Arenie Vijayaratnam	Non-metals prep supervisor	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG020T:EM1817751#4 The level of Manganese observed is consistent with that measured in the deionised water supplied by ALS for equipment cleaning purposes.
- EG020T:EM1817751#4 results for total metal have been confirmed by re-digestion and re-analysis.
- EG005T:EM1817751_002 and 005 have been confirmed for metals by re-extraction and re-analysis.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Triplicate 1	Duplicate	TP17-01	TP17-02	TP18-01
			Client sampling date / time	01-Nov-2018 00:00	01-Nov-2018 00:00	01-Nov-2018 00:00	01-Nov-2018 00:00	01-Nov-2018 00:00
Compound	CAS Number	LOR	Unit	EM1817751-002	EM1817751-003	EM1817751-005	EM1817751-006	EM1817751-007
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	22.6	15.8	27.1	10.2	11.4
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	19	----	13	<5	<5
Barium	7440-39-3	10	mg/kg	2290	----	2010	50	50
Beryllium	7440-41-7	1	mg/kg	<1	----	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	----	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	6	----	7	<1	<1
Chromium	7440-47-3	2	mg/kg	15	----	16	7	13
Cobalt	7440-48-4	2	mg/kg	11	----	10	4	17
Copper	7440-50-8	5	mg/kg	288	----	322	9	70
Lead	7439-92-1	5	mg/kg	3570	----	4150	30	<5
Manganese	7439-96-5	5	mg/kg	1060	----	1520	29	468
Nickel	7440-02-0	2	mg/kg	56	----	63	5	23
Selenium	7782-49-2	5	mg/kg	<5	----	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	19	----	21	12	57
Zinc	7440-66-6	5	mg/kg	5720	----	5390	55	30
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	14.2	----	14.6	0.1	<0.1
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup								
>C10 - C16 Fraction	----	50	mg/kg	<50	----	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	110	----	210	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	110	----	210	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	<50	----	----
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup								
C10 - C14 Fraction	----	50	mg/kg	<50	----	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	160	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	160	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg	----	<100	----	<100	<100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Triplicate 1	Duplicate	TP17-01	TP17-02	TP18-01
			Client sampling date / time	01-Nov-2018 00:00	01-Nov-2018 00:00	01-Nov-2018 00:00	01-Nov-2018 00:00	01-Nov-2018 00:00
Compound	CAS Number	LOR	Unit	EM1817751-002	EM1817751-003	EM1817751-005	EM1817751-006	EM1817751-007
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
C29 - C36 Fraction	----	100	mg/kg	----	<100	----	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	----	<50	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	----	110	----	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	110	----	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	----	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	68.4	74.8	73.1	79.0	75.9
Toluene-D8	2037-26-5	0.2	%	71.8	81.6	74.4	81.1	81.3
4-Bromofluorobenzene	460-00-4	0.2	%	90.9	109	95.0	107	109

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP18-02	TP19-01	TP19-02	L2-V1	L2-V2
			Client sampling date / time	01-Nov-2018 00:00	01-Nov-2018 00:00	01-Nov-2018 00:00	01-Nov-2018 00:00	01-Nov-2018 00:00
Compound	CAS Number	LOR	Unit	EM1817751-008	EM1817751-009	EM1817751-010	EM1817751-011	EM1817751-012
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	7.2	5.5	9.2	3.6	6.6
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	50	20	60	60	50
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	6	8	8	4	27
Cobalt	7440-48-4	2	mg/kg	6	15	5	12	10
Copper	7440-50-8	5	mg/kg	17	76	21	45	37
Lead	7439-92-1	5	mg/kg	8	<5	24	100	54
Manganese	7439-96-5	5	mg/kg	182	502	282	449	292
Nickel	7440-02-0	2	mg/kg	7	21	9	5	6
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	19	51	22	46	48
Zinc	7440-66-6	5	mg/kg	22	32	30	131	115
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	0.3	0.2
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup								
>C10 - C16 Fraction	----	50	mg/kg	----	----	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	----	----	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	----	----	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	<50	----	----
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup								
C10 - C14 Fraction	----	50	mg/kg	----	----	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	----	----	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	----	----	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	<50	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	180	320

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP18-02	TP19-01	TP19-02	L2-V1	L2-V2
			Client sampling date / time	01-Nov-2018 00:00	01-Nov-2018 00:00	01-Nov-2018 00:00	01-Nov-2018 00:00	01-Nov-2018 00:00
Compound	CAS Number	LOR	Unit	EM1817751-008	EM1817751-009	EM1817751-010	EM1817751-011	EM1817751-012
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	**160**	**300**
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	**340**	**620**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	**300**	**540**
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	<100	**140**
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	----	**300**	**680**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**74.8**	**83.2**	**78.5**	**78.9**	**83.7**
Toluene-D8	2037-26-5	0.2	%	**82.6**	**85.9**	**83.6**	**79.3**	**85.4**
4-Bromofluorobenzene	460-00-4	0.2	%	**110**	**118**	**112**	**108**	**115**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	L2-V3	L2-V4	L2-V5	L1-V1	L1-V2
			Client sampling date / time	01-Nov-2018 00:00	01-Nov-2018 00:00	01-Nov-2018 00:00	01-Nov-2018 00:00	01-Nov-2018 00:00
Compound	CAS Number	LOR	Unit	EM1817751-013	EM1817751-014	EM1817751-015	EM1817751-016	EM1817751-017
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	8.2	10.0	6.1	12.2	14.4
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	----
Barium	7440-39-3	10	mg/kg	50	80	50	----	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	----	----
Boron	7440-42-8	50	mg/kg	<50	<50	<50	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	4	4	6	----	----
Cobalt	7440-48-4	2	mg/kg	9	12	9	----	----
Copper	7440-50-8	5	mg/kg	36	54	33	----	----
Lead	7439-92-1	5	mg/kg	43	223	22	----	----
Manganese	7439-96-5	5	mg/kg	362	422	251	----	----
Nickel	7440-02-0	2	mg/kg	6	6	9	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----
Vanadium	7440-62-2	5	mg/kg	36	39	39	----	----
Zinc	7440-66-6	5	mg/kg	79	171	77	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.2	0.2	<0.1	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	250	160	130	<100	<100
C29 - C36 Fraction	----	100	mg/kg	250	150	120	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	500	310	250	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	440	270	200	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	120	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	560	270	200	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	L2-V3	L2-V4	L2-V5	L1-V1	L1-V2
			Client sampling date / time	01-Nov-2018 00:00	01-Nov-2018 00:00	01-Nov-2018 00:00	01-Nov-2018 00:00	01-Nov-2018 00:00
Compound	CAS Number	LOR	Unit	EM1817751-013	EM1817751-014	EM1817751-015	EM1817751-016	EM1817751-017
				Result	Result	Result	Result	Result
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**81.5**	**78.5**	**83.0**	**76.4**	**81.7**
Toluene-D8	2037-26-5	0.2	%	**83.0**	**80.7**	**85.5**	**76.9**	**78.3**
4-Bromofluorobenzene	460-00-4	0.2	%	**109**	**107**	**114**	**101**	**105**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	L1-V3	L3-V1	----	----	----
				Client sampling date / time	01-Nov-2018 00:00	01-Nov-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1817751-018	EM1817751-019	--------	--------	--------
					Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**2.9**	**9.8**	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		**100**	**710**	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	**400**	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		**100**	**1110**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		**170**	**960**	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	**180**	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		**170**	**1140**	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**99.4**	**77.4**	----	----	----
Toluene-D8	2037-26-5	0.2	%		**98.7**	**82.2**	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**120**	**107**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Trip blank	Rinsate - bucket	----	----	----
				Client sampling date / time	01-Nov-2018 00:00	01-Nov-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1817751-001	EM1817751-004	--------	--------	--------
					Result	Result	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		----	<0.001	----	----	----
Boron	7440-42-8	0.05	mg/L		----	<0.05	----	----	----
Barium	7440-39-3	0.001	mg/L		----	<0.001	----	----	----
Beryllium	7440-41-7	0.001	mg/L		----	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		----	<0.0001	----	----	----
Cobalt	7440-48-4	0.001	mg/L		----	<0.001	----	----	----
Chromium	7440-47-3	0.001	mg/L		----	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L		----	<0.001	----	----	----
Manganese	7439-96-5	0.001	mg/L		----	**0.002**	----	----	----
Nickel	7440-02-0	0.001	mg/L		----	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L		----	<0.001	----	----	----
Selenium	7782-49-2	0.01	mg/L		----	<0.01	----	----	----
Vanadium	7440-62-2	0.01	mg/L		----	<0.01	----	----	----
Zinc	7440-66-6	0.005	mg/L		----	<0.005	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		----	<0.0001	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L		----	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L		----	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L		----	<50	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		----	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L		----	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L		----	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L		----	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		----	<100	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		----	<100	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Trip blank	Rinsate - bucket	----	----	----
				Client sampling date / time	01-Nov-2018 00:00	01-Nov-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1817751-001	EM1817751-004	--------	--------	--------
					Result	Result	----	----	----
EP080: BTEXN - Continued									
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**93.6**	**102**	----	----	----
Toluene-D8	2037-26-5	2	%		**93.6**	**98.7**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**110**	**118**	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1818265**	Page	: 1 of 6
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +6138549 9630
Project	: Oatlands DSI	Date Samples Received	: 02-Nov-2018 11:40
Order number	: 4193.005	Date Analysis Commenced	: 14-Nov-2018
C-O-C number	: ----	Issue Date	: 16-Nov-2018 11:15
Sampler	: ----		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- **This is a rebatch of EM1817751.**
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)				Client sample ID	**TP17-01**	**----**	**----**	**----**	**----**
				Client sampling date / time	01-Nov-2018 00:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*		**EM1818265-001**	**--------**	**--------**	**--------**	**--------**
					Result	----	----	----	----
EN33: TCLP Leach									
Extraction Fluid Number	----	1	-		**1**	**----**	**----**	**----**	**----**
Final pH	----	0.1	pH Unit		**5.2**	**----**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: TCLP LEACHATE (Matrix: WATER)				Client sample ID	TP17-01	----	----	----	----
				Client sampling date / time	01-Nov-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1818265-001	--------	--------	--------	--------
					Result	----	----	----	----
EG005C: Leachable Metals by ICPAES									
Arsenic	7440-38-2	0.1	mg/L		<0.1	----	----	----	----
Barium	7440-39-3	0.1	mg/L		**1.7**	----	----	----	----
Beryllium	7440-41-7	0.05	mg/L		<0.05	----	----	----	----
Boron	7440-42-8	0.1	mg/L		**0.4**	----	----	----	----
Cadmium	7440-43-9	0.05	mg/L		<0.05	----	----	----	----
Chromium	7440-47-3	0.1	mg/L		<0.1	----	----	----	----
Cobalt	7440-48-4	0.1	mg/L		<0.1	----	----	----	----
Copper	7440-50-8	0.1	mg/L		**0.2**	----	----	----	----
Lead	7439-92-1	0.1	mg/L		**1.2**	----	----	----	----
Manganese	7439-96-5	0.1	mg/L		**1.0**	----	----	----	----
Nickel	7440-02-0	0.1	mg/L		**0.1**	----	----	----	----
Selenium	7782-49-2	0.05	mg/L		<0.05	----	----	----	----
Vanadium	7440-62-2	0.1	mg/L		<0.1	----	----	----	----
Zinc	7440-66-6	0.1	mg/L		**41.8**	----	----	----	----
EG035C: Leachable Mercury by FIMS									
Mercury	7439-97-6	0.0010	mg/L		<0.0010	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: TCLP LEACHATE (Matrix: WATER)				Client sample ID	TP17-01	----	----	----	----
				Client sampling date / time	01-Nov-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1818265-001	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**34.7**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**79.8**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**103**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**96.1**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**90.4**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**85.0**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **TCLP LEACHATE**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	46
2-Chlorophenol-D4	93951-73-6	23	104
2.4.6-Tribromophenol	118-79-6	28	130
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	36	114
Anthracene-d10	1719-06-8	51	119
4-Terphenyl-d14	1718-51-0	49	127

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1820652**	Page	: 1 of 11
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +6138549 9630
Project	: Oatlands DSI	Date Samples Received	: 20-Dec-2018 10:25
Order number	: 4193.005	Date Analysis Commenced	: 21-Dec-2018
C-O-C number	: ----	Issue Date	: 08-Jan-2019 17:12
Sampler	: FIONA KESERUE-PONTE		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 20		
No. of samples analysed	: 20		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG005T: EM1820652_018 Poor duplicate precision for Zinc due to sample matrix. Confirmed by re-extraction and re-analysis.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Trip 1	Dup	MR01	MR02	MR03
			Client sampling date / time	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00
Compound	CAS Number	LOR	Unit	EM1820652-001	EM1820652-002	EM1820652-003	EM1820652-004	EM1820652-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	5.8	15.0	7.2	4.2	4.8
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	40	470	30	30	50
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	<2	21	<2	<2	3
Cobalt	7440-48-4	2	mg/kg	<2	6	<2	<2	<2
Copper	7440-50-8	5	mg/kg	<5	52	<5	<5	<5
Lead	7439-92-1	5	mg/kg	<5	1620	<5	<5	34
Manganese	7439-96-5	5	mg/kg	61	310	40	33	82
Nickel	7440-02-0	2	mg/kg	<2	8	<2	<2	2
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	<5	16	<5	<5	7
Zinc	7440-66-6	5	mg/kg	<5	892	<5	<5	20
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	3.0	<0.1	<0.1	0.4
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	Trip 1	Dup	MR01	MR02	MR03
				Client sampling date / time	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00
Compound	CAS Number	LOR	Unit		EM1820652-001	EM1820652-002	EM1820652-003	EM1820652-004	EM1820652-005
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**101**	**99.4**	**101**	**99.2**	**99.3**
2-Chlorophenol-D4	93951-73-6	0.5	%		**101**	**100.0**	**102**	**99.9**	**99.0**
2.4.6-Tribromophenol	118-79-6	0.5	%		**82.4**	**89.0**	**79.7**	**74.8**	**79.9**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**101**	**104**	**101**	**98.7**	**99.5**
Anthracene-d10	1719-06-8	0.5	%		**119**	**127**	**120**	**114**	**120**
4-Terphenyl-d14	1718-51-0	0.5	%		**112**	**113**	**110**	**110**	**111**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	MR04	MR05	MR06	MR07	MR08
			Client sampling date / time	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00
Compound	CAS Number	LOR	Unit	EM1820652-006	EM1820652-007	EM1820652-008	EM1820652-009	EM1820652-010
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	3.4	15.3	2.2	8.3	8.4
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	60	80	30	70	20
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	2	5	<2	4	5
Cobalt	7440-48-4	2	mg/kg	<2	6	<2	<2	2
Copper	7440-50-8	5	mg/kg	20	22	<5	14	<5
Lead	7439-92-1	5	mg/kg	20	129	<5	134	<5
Manganese	7439-96-5	5	mg/kg	48	273	29	71	20
Nickel	7440-02-0	2	mg/kg	5	8	<2	2	3
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	<5	18	<5	7	8
Zinc	7440-66-6	5	mg/kg	14	110	<5	49	5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.2	0.3	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	MR04	MR05	MR06	MR07	MR08
				Client sampling date / time	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00
Compound	CAS Number	LOR	Unit		EM1820652-006	EM1820652-007	EM1820652-008	EM1820652-009	EM1820652-010
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		100	104	99.4	97.4	97.4
2-Chlorophenol-D4	93951-73-6	0.5	%		101	104	98.9	97.8	97.2
2.4.6-Tribromophenol	118-79-6	0.5	%		82.8	89.0	78.1	80.8	68.0
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		101	105	99.1	96.2	96.2
Anthracene-d10	1719-06-8	0.5	%		122	118	120	127	110
4-Terphenyl-d14	1718-51-0	0.5	%		105	112	108	105	106

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	MR09	MR10	MR11	MR12	MR13
			Client sampling date / time	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00
Compound	CAS Number	LOR	Unit	EM1820652-011	EM1820652-012	EM1820652-013	EM1820652-014	EM1820652-015
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	9.0	7.2	9.6	12.6	18.3
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	40	70	100	40	90
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	8	4	4	2	4
Cobalt	7440-48-4	2	mg/kg	8	4	4	2	4
Copper	7440-50-8	5	mg/kg	<5	8	10	<5	9
Lead	7439-92-1	5	mg/kg	8	81	24	16	69
Manganese	7439-96-5	5	mg/kg	109	204	153	254	306
Nickel	7440-02-0	2	mg/kg	9	5	4	2	4
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	14	8	12	6	10
Zinc	7440-66-6	5	mg/kg	41	66	19	28	37
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	0.3	0.3	0.1	1.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	MR09	MR10	MR11	MR12	MR13
				Client sampling date / time	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00
Compound	CAS Number	LOR	Unit		EM1820652-011	EM1820652-012	EM1820652-013	EM1820652-014	EM1820652-015
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		97.8	100	96.8	95.2	96.2
2-Chlorophenol-D4	93951-73-6	0.5	%		97.6	100	96.6	95.4	96.3
2.4.6-Tribromophenol	118-79-6	0.5	%		74.7	80.1	76.2	62.7	71.4
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		97.2	102	95.4	94.2	95.1
Anthracene-d10	1719-06-8	0.5	%		121	119	107	106	110
4-Terphenyl-d14	1718-51-0	0.5	%		107	110	105	105	104

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	MR14	MS01	MS02	MS03	MS04
			Client sampling date / time	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00
Compound	CAS Number	LOR	Unit	EM1820652-016	EM1820652-017	EM1820652-018	EM1820652-019	EM1820652-020
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	5.5	11.5	15.8	11.2	15.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	6	5	<5
Barium	7440-39-3	10	mg/kg	60	260	660	760	300
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	3	4	<1
Chromium	7440-47-3	2	mg/kg	5	7	16	23	7
Cobalt	7440-48-4	2	mg/kg	6	7	8	8	8
Copper	7440-50-8	5	mg/kg	28	46	102	331	42
Lead	7439-92-1	5	mg/kg	108	420	2550	1630	756
Manganese	7439-96-5	5	mg/kg	240	342	342	753	458
Nickel	7440-02-0	2	mg/kg	6	11	19	19	8
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	17	14	22	34	17
Zinc	7440-66-6	5	mg/kg	82	198	1020	3020	406
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.8	0.6	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	MR14	MS01	MS02	MS03	MS04
				Client sampling date / time	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00
Compound	CAS Number	LOR	Unit		EM1820652-016	EM1820652-017	EM1820652-018	EM1820652-019	EM1820652-020
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		97.3	93.7	95.6	95.5	97.6
2-Chlorophenol-D4	93951-73-6	0.5	%		98.0	92.9	96.2	95.2	97.5
2.4.6-Tribromophenol	118-79-6	0.5	%		77.3	77.6	84.6	85.5	85.6
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		100.0	95.9	99.0	97.7	100
Anthracene-d10	1719-06-8	0.5	%		113	121	125	121	127
4-Terphenyl-d14	1718-51-0	0.5	%		104	105	106	105	108

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1900118**	Page	: 1 of 4
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +6138549 9630
Project	: Oatlands DSI	Date Samples Received	: 20-Dec-2018 10:25
Order number	: 4193.005	Date Analysis Commenced	: 14-Jan-2019
C-O-C number	: ----	Issue Date	: 15-Jan-2019 17:00
Sampler	: ----		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- This is a rebatch of EM1820652.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Dup	MS02	MS03	----	----
			Client sampling date / time	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1900118-002	EM1900118-018	EM1900118-019	--------	--------
				Result	Result	Result	----	----
EN33: TCLP Leach								
Initial pH	----	0.1	pH Unit	**6.8**	**6.9**	**7.0**	**----**	**----**
After HCl pH	----	0.1	pH Unit	**1.3**	**1.4**	**1.4**	**----**	**----**
Extraction Fluid Number	----	1	-	**1**	**1**	**1**	**----**	**----**
Final pH	----	0.1	pH Unit	**4.9**	**5.1**	**5.1**	**----**	**----**

Analytical Results

Sub-Matrix: **TCLP LEACHATE** (Matrix: **WATER**)			Client sample ID	**Dup**	**MS02**	**MS03**	**----**	**----**
			Client sampling date / time	18-Dec-2018 00:00	18-Dec-2018 00:00	18-Dec-2018 00:00	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**EM1900118-002**	**EM1900118-018**	**EM1900118-019**	**--------**	**--------**
				Result	Result	Result	----	----
EG005C: Leachable Metals by ICPAES								
Lead	7439-92-1	0.1	mg/L	**0.4**	**0.9**	**46.6**	**----**	**----**

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1901520**	Page	: 1 of 4
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +6138549 9630
Project	: Oatlands DSI	Date Samples Received	: 20-Dec-2018 10:25
Order number	: 4193.005	Date Analysis Commenced	: 07-Feb-2019
C-O-C number	: ----	Issue Date	: 11-Feb-2019 17:34
Sampler	: ----		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 6		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

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- General Comments
- Analytical Results

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Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- This is a rebatch of EM1900118 and EM1820652.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	Composite	----	----	----	----
				Client sampling date / time	18-Dec-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1901520-006	--------	--------	--------	--------
					Result	----	----	----	----
EN33: TCLP Leach									
Extraction Fluid Number	----	1	-		**1**	----	----	----	----
Final pH	----	0.1	pH Unit		**5.0**	----	----	----	----

Analytical Results

Sub-Matrix: **TCLP LEACHATE** (Matrix: **WATER**)				Client sample ID	**Composite**	----	----	----	----
				Client sampling date / time	18-Dec-2018 00:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*		**EM1901520-006**	--------	--------	--------	--------
					Result	----	----	----	----
EG005C: Leachable Metals by ICPAES									
Lead	7439-92-1	0.1	mg/L		**9.8**	**----**	**----**	**----**	**----**

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1907330**	Page	: 1 of 5
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +6138549 9630
Project	: Oatlands DSI	Date Samples Received	: 15-May-2019 10:55
Order number	: 4193.005	Date Analysis Commenced	: 17-May-2019
C-O-C number	: ----	Issue Date	: 23-May-2019 16:06
Sampler	: FKP		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 7		
No. of samples analysed	: 7		

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This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	OPVal01	OPVal02	OPVal03	OPVal04	OPVal05
			Client sampling date / time	14-May-2019 00:00	14-May-2019 00:00	14-May-2019 00:00	14-May-2019 00:00	14-May-2019 00:00
Compound	CAS Number	LOR	Unit	EM1907330-001	EM1907330-002	EM1907330-003	EM1907330-004	EM1907330-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**7.1**	**6.1**	**9.6**	**8.2**	**8.4**
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	**70**	**50**	**60**	**80**	**70**
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<5	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	**20**	**10**	**9**	**7**	**11**
Cobalt	7440-48-4	2	mg/kg	**13**	**11**	**13**	**17**	**12**
Copper	7440-50-8	5	mg/kg	**61**	**55**	**36**	**40**	**52**
Lead	7439-92-1	5	mg/kg	**38**	**28**	**22**	**74**	**272**
Manganese	7439-96-5	5	mg/kg	**994**	**295**	**376**	**428**	**324**
Nickel	7440-02-0	2	mg/kg	**29**	**15**	**16**	**10**	**16**
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	**30**	**43**	**25**	**30**	**34**
Zinc	7440-66-6	5	mg/kg	**809**	**105**	**104**	**340**	**131**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	**0.2**	**0.2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	Dup	----	----	----	----
				Client sampling date / time	14-May-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1907330-006	--------	--------	--------	--------
					Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**5.6**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	----	----	----	----
Barium	7440-39-3	10	mg/kg		**40**	----	----	----	----
Beryllium	7440-41-7	1	mg/kg		<1	----	----	----	----
Boron	7440-42-8	50	mg/kg		<50	----	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg		**6**	----	----	----	----
Cobalt	7440-48-4	2	mg/kg		**11**	----	----	----	----
Copper	7440-50-8	5	mg/kg		**57**	----	----	----	----
Lead	7439-92-1	5	mg/kg		**17**	----	----	----	----
Manganese	7439-96-5	5	mg/kg		**268**	----	----	----	----
Nickel	7440-02-0	2	mg/kg		**13**	----	----	----	----
Selenium	7782-49-2	5	mg/kg		<5	----	----	----	----
Vanadium	7440-62-2	5	mg/kg		**44**	----	----	----	----
Zinc	7440-66-6	5	mg/kg		**91**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Rinsate	----	----	----	----
				Client sampling date / time	14-May-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1907330-007	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Boron	7440-42-8	0.05	mg/L		<0.05	----	----	----	----
Barium	7440-39-3	0.001	mg/L		<0.001	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----

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The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Fiona Keserue Ponte**

Report **583301-S**
Project name OATLANDS DSI
Project ID 4193.005
Received Date Feb 05, 2018

Client Sample ID			**TRIPLICATE 2**	**TRIPLICATE 4**	**TRIPLICATE 6**	**TRIPLICATE 8**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M18-Fe05087**	**M18-Fe05088**	**M18-Fe05089**	**M18-Fe05090**
Date Sampled			**Jan 31, 2018**	**Feb 01, 2018**	**Feb 01, 2018**	**Feb 02, 2018**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	74	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	74	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	72	73	123	83
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			TRIPLICATE 2	TRIPLICATE 4	TRIPLICATE 6	TRIPLICATE 8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M18-Fe05087	M18-Fe05088	M18-Fe05089	M18-Fe05090
Date Sampled			Jan 31, 2018	Feb 01, 2018	Feb 01, 2018	Feb 02, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	92	93	91	95
p-Terphenyl-d14 (surr.)	1	%	108	116	110	129
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	-	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	-	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	-	-	< 0.05	-
a-BHC	0.05	mg/kg	-	-	< 0.05	-
Aldrin	0.05	mg/kg	-	-	< 0.05	-
b-BHC	0.05	mg/kg	-	-	< 0.05	-
d-BHC	0.05	mg/kg	-	-	< 0.05	-
Dieldrin	0.05	mg/kg	-	-	< 0.05	-
Endosulfan I	0.05	mg/kg	-	-	< 0.05	-
Endosulfan II	0.05	mg/kg	-	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	-	-	< 0.05	-
Endrin	0.05	mg/kg	-	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	-	-	< 0.05	-
Endrin ketone	0.05	mg/kg	-	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	-	-	< 0.05	-
Heptachlor	0.05	mg/kg	-	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	-	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	-	-	< 0.05	-
Methoxychlor	0.05	mg/kg	-	-	< 0.05	-
Toxaphene	1	mg/kg	-	-	< 1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	-	-	73	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	54	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	-	< 0.2	-
Bolstar	0.2	mg/kg	-	-	< 0.2	-
Chlorfenvinphos	0.2	mg/kg	-	-	< 0.2	-
Chlorpyrifos	0.2	mg/kg	-	-	< 0.2	-
Chlorpyrifos-methyl	0.2	mg/kg	-	-	< 0.2	-
Coumaphos	2	mg/kg	-	-	< 2	-
Demeton-S	0.2	mg/kg	-	-	< 0.2	-
Demeton-O	0.2	mg/kg	-	-	< 0.2	-
Diazinon	0.2	mg/kg	-	-	< 0.2	-
Dichlorvos	0.2	mg/kg	-	-	< 0.2	-
Dimethoate	0.2	mg/kg	-	-	< 0.2	-

Client Sample ID			TRIPLICATE 2	TRIPLICATE 4	TRIPLICATE 6	TRIPLICATE 8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M18-Fe05087	M18-Fe05088	M18-Fe05089	M18-Fe05090
Date Sampled			Jan 31, 2018	Feb 01, 2018	Feb 01, 2018	Feb 02, 2018
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Disulfoton	0.2	mg/kg	-	-	< 0.2	-
EPN	0.2	mg/kg	-	-	< 0.2	-
Ethion	0.2	mg/kg	-	-	< 0.2	-
Ethoprop	0.2	mg/kg	-	-	< 0.2	-
Ethyl parathion	0.2	mg/kg	-	-	< 0.2	-
Fenitrothion	0.2	mg/kg	-	-	< 0.2	-
Fensulfothion	0.2	mg/kg	-	-	< 0.2	-
Fenthion	0.2	mg/kg	-	-	< 0.2	-
Malathion	0.2	mg/kg	-	-	< 0.2	-
Merphos	0.2	mg/kg	-	-	< 0.2	-
Methyl parathion	0.2	mg/kg	-	-	< 0.2	-
Mevinphos	0.2	mg/kg	-	-	< 0.2	-
Monocrotophos	2	mg/kg	-	-	< 2	-
Naled	0.2	mg/kg	-	-	< 0.2	-
Omethoate	2	mg/kg	-	-	< 2	-
Phorate	0.2	mg/kg	-	-	< 0.2	-
Pirimiphos-methyl	0.2	mg/kg	-	-	< 0.2	-
Pyrazophos	0.2	mg/kg	-	-	< 0.2	-
Ronnel	0.2	mg/kg	-	-	< 0.2	-
Terbufos	0.2	mg/kg	-	-	< 0.2	-
Tetrachlorvinphos	0.2	mg/kg	-	-	< 0.2	-
Tokuthion	0.2	mg/kg	-	-	< 0.2	-
Trichloronate	0.2	mg/kg	-	-	< 0.2	-
Triphenylphosphate (surr.)	1	%	-	-	104	-
Acid Herbicides						
2.4-D	0.5	mg/kg	-	-	< 0.5	-
2.4-DB	0.5	mg/kg	-	-	< 0.5	-
2.4.5-T	0.5	mg/kg	-	-	< 0.5	-
2.4.5-TP	0.5	mg/kg	-	-	< 0.5	-
Actril (loxynil)	0.5	mg/kg	-	-	< 0.5	-
Dicamba	0.5	mg/kg	-	-	< 0.5	-
Dichlorprop	0.5	mg/kg	-	-	< 0.5	-
Dinitro-o-cresol	0.5	mg/kg	-	-	< 0.5	-
Dinoseb	0.5	mg/kg	-	-	< 0.5	-
MCPA	0.5	mg/kg	-	-	< 0.5	-
MCPB	0.5	mg/kg	-	-	< 0.5	-
Mecoprop	0.5	mg/kg	-	-	< 0.5	-
Warfarin (surr.)	1	%	-	-	111	-
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	-	< 0.5	-
2.4-Dichlorophenol	0.5	mg/kg	-	-	< 0.5	-
2.4.5-Trichlorophenol	1	mg/kg	-	-	< 1	-
2.4.6-Trichlorophenol	1.0	mg/kg	-	-	< 1	-
2.6-Dichlorophenol	0.5	mg/kg	-	-	< 0.5	-
4-Chloro-3-methylphenol	1.0	mg/kg	-	-	< 1	-
Pentachlorophenol	1.0	mg/kg	-	-	< 1	-
Tetrachlorophenols - Total	1.0	mg/kg	-	-	< 1	-
Total Halogenated Phenol*	1	mg/kg	-	-	< 1	-

Client Sample ID			TRIPLICATE 2	TRIPLICATE 4	TRIPLICATE 6	TRIPLICATE 8
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M18-Fe05087**	**M18-Fe05088**	**M18-Fe05089**	**M18-Fe05090**
Date Sampled			**Jan 31, 2018**	**Feb 01, 2018**	**Feb 01, 2018**	**Feb 02, 2018**
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	-	< 20	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	-	< 5	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	< 0.2	-
2-Nitrophenol	1.0	mg/kg	-	-	< 1	-
2.4-Dimethylphenol	0.5	mg/kg	-	-	< 0.5	-
2.4-Dinitrophenol	5	mg/kg	-	-	< 5	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	< 0.4	-
4-Nitrophenol	5	mg/kg	-	-	< 5	-
Dinoseb	20	mg/kg	-	-	< 20	-
Phenol	0.5	mg/kg	-	-	< 0.5	-
Total Non-Halogenated Phenol*	20	mg/kg	-	-	< 20	-
Phenol-d6 (surr.)	1	%	-	-	92	-
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1	< 1
Chromium (trivalent)	5	mg/kg	11	11	< 5	7.2
% Moisture	1	%	14	26	7.1	6.4
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Barium	10	mg/kg	26	55	33	41
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	< 10	< 10	< 10	< 10
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	11	11	< 5	7.2
Cobalt	5	mg/kg	14	7.0	< 5	11
Copper	5	mg/kg	62	5.5	13	10
Lead	5	mg/kg	< 5	22	12	15
Manganese	5	mg/kg	380	85	95	250
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	22	7.1	6.5	5.2
Vanadium	10	mg/kg	55	18	15	47
Zinc	5	mg/kg	27	53	28	16

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Feb 07, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C36			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 07, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 07, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
BTEX and Naphthalene			
BTEX	Melbourne	Feb 07, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Melbourne	Feb 07, 2018	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soils by GCMS			
Acid Herbicides	Melbourne	Feb 07, 2018	14 Day
- Method: LTM-ORG-2180 Phenoxy Acid Herbicides			
Eurofins | mgt Suite B14			
Organochlorine Pesticides	Melbourne	Feb 07, 2018	14 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Melbourne	Feb 07, 2018	14 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Phenols (IWRG 621)			
Phenols (Halogenated)	Melbourne	Feb 07, 2018	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soils by GCMS			
Phenols (non-Halogenated)	Melbourne	Feb 07, 2018	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soils by GCMS			
Chromium (hexavalent)	Melbourne	Feb 07, 2018	28 Day
- Method: APHA 3500-Cr Hexavalent Chromium- (Extraction:- USEPA3060)			
Heavy Metals	Melbourne	Feb 07, 2018	180 Day
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
% Moisture	Melbourne	Feb 06, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

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Address: 5/40 Molle St
Hobart
TAS 7000

Project Name: OATLANDS DSI
Project ID: 4193.005

Order No.:
Report #: 583301
Phone: 03 6212 4400
Fax: 03 6212 4475

Received: Feb 5, 2018 3:37 PM
Due: Feb 12, 2018
Priority: 5 Day
Contact Name: Fiona Keserue Ponte

Eurofins | mgt Analytical Services Manager : Michael Cassidy

Sample Detail						Polycyclic Aromatic Hydrocarbons	Acid Herbicides	Phenols (IWRG 621)	Eurofins | mgt Suite B14	NEPM 1999 Metals : Metals M15	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217													
Brisbane Laboratory - NATA Site # 20794													
Perth Laboratory - NATA Site # 23736													
External Laboratory													
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**								
1	TRIPLICATE 2	Jan 31, 2018		Soil	M18-Fe05087	X				X	X	X	X
2	TRIPLICATE 4	Feb 01, 2018		Soil	M18-Fe05088	X				X	X	X	X
3	TRIPLICATE 6	Feb 01, 2018		Soil	M18-Fe05089	X	X	X	X	X	X	X	X
4	TRIPLICATE 8	Feb 02, 2018		Soil	M18-Fe05090	X				X	X	X	X
Test Counts						4	1	1	1	4	4	4	4

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

ug/L: micrograms per litre

ppb: Parts per billion

org/100mL: Organisms per 100 millilitres

MPN/100mL: Most Probable Number of organisms per 100 millilitres

mg/L: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Nephelometric Turbidity Units

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Acid Herbicides							
2.4-D	mg/kg	< 0.5			0.5	Pass	
2.4-DB	mg/kg	< 0.5			0.5	Pass	
2.4.5-T	mg/kg	< 0.5			0.5	Pass	
2.4.5-TP	mg/kg	< 0.5			0.5	Pass	
Actril (loxynil)	mg/kg	< 0.5			0.5	Pass	
Dicamba	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dichlorprop	mg/kg	< 0.5			0.5	Pass	
Dinitro-o-cresol	mg/kg	< 0.5			0.5	Pass	
Dinoseb	mg/kg	< 0.5			0.5	Pass	
MCPA	mg/kg	< 0.5			0.5	Pass	
MCPB	mg/kg	< 0.5			0.5	Pass	
Mecoprop	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1.0	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1.0	Pass	
Pentachlorophenol	mg/kg	< 1			1.0	Pass	
Tetrachlorophenols - Total	mg/kg	< 1			1.0	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Nitrophenol	mg/kg	< 1			1.0	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Barium	mg/kg	< 10			10	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Boron	mg/kg	< 10			10	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Vanadium	mg/kg	< 10			10	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	109			70-130	Pass	
TRH C10-C14	%	95			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	75			70-130	Pass	
Toluene	%	81			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ethylbenzene	%	90			70-130	Pass	
m&p-Xylenes	%	91			70-130	Pass	
Xylenes - Total	%	90			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	107			70-130	Pass	
TRH C6-C10	%	105			70-130	Pass	
TRH >C10-C16	%	93			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	106			70-130	Pass	
Acenaphthylene	%	103			70-130	Pass	
Anthracene	%	119			70-130	Pass	
Benz(a)anthracene	%	79			70-130	Pass	
Benzo(a)pyrene	%	99			70-130	Pass	
Benzo(b&j)fluoranthene	%	90			70-130	Pass	
Benzo(g.h.i)perylene	%	82			70-130	Pass	
Benzo(k)fluoranthene	%	114			70-130	Pass	
Chrysene	%	117			70-130	Pass	
Dibenz(a.h)anthracene	%	94			70-130	Pass	
Fluoranthene	%	104			70-130	Pass	
Fluorene	%	104			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	89			70-130	Pass	
Naphthalene	%	102			70-130	Pass	
Phenanthrene	%	79			70-130	Pass	
Pyrene	%	108			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
4.4'-DDD	%	100			70-130	Pass	
4.4'-DDE	%	120			70-130	Pass	
4.4'-DDT	%	76			70-130	Pass	
a-BHC	%	101			70-130	Pass	
Aldrin	%	115			70-130	Pass	
b-BHC	%	96			70-130	Pass	
d-BHC	%	104			70-130	Pass	
Dieldrin	%	109			70-130	Pass	
Endosulfan I	%	109			70-130	Pass	
Endosulfan II	%	107			70-130	Pass	
Endosulfan sulphate	%	112			70-130	Pass	
Endrin	%	106			70-130	Pass	
Endrin aldehyde	%	127			70-130	Pass	
Endrin ketone	%	112			70-130	Pass	
g-BHC (Lindane)	%	100			70-130	Pass	
Heptachlor	%	115			70-130	Pass	
Heptachlor epoxide	%	112			70-130	Pass	
Hexachlorobenzene	%	97			70-130	Pass	
Methoxychlor	%	87			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	124			70-130	Pass	
Dimethoate	%	86			70-130	Pass	
Ethion	%	94			70-130	Pass	
Fenitrothion	%	73			70-130	Pass	
Methyl parathion	%	105			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Mevinphos	%	105			70-130	Pass	
LCS - % Recovery							
Acid Herbicides							
2.4-D	%	94			70-130	Pass	
2.4-DB	%	103			70-130	Pass	
2.4.5-T	%	93			70-130	Pass	
2.4.5-TP	%	75			70-130	Pass	
Actril (loxynil)	%	88			70-130	Pass	
Dicamba	%	84			70-130	Pass	
Dichlorprop	%	89			70-130	Pass	
Dinitro-o-cresol	%	90			70-130	Pass	
Dinoseb	%	88			70-130	Pass	
MCPA	%	96			70-130	Pass	
MCPB	%	103			70-130	Pass	
Mecoprop	%	84			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	101			30-130	Pass	
2.4-Dichlorophenol	%	84			30-130	Pass	
2.4.5-Trichlorophenol	%	107			30-130	Pass	
2.4.6-Trichlorophenol	%	58			30-130	Pass	
2.6-Dichlorophenol	%	108			30-130	Pass	
4-Chloro-3-methylphenol	%	103			30-130	Pass	
Pentachlorophenol	%	38			30-130	Pass	
Tetrachlorophenols - Total	%	76			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	40			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	34			30-130	Pass	
2-Methylphenol (o-Cresol)	%	101			30-130	Pass	
2-Nitrophenol	%	99			30-130	Pass	
2.4-Dimethylphenol	%	100			30-130	Pass	
2.4-Dinitrophenol	%	34			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	105			30-130	Pass	
4-Nitrophenol	%	45			30-130	Pass	
Dinoseb	%	32			30-130	Pass	
Phenol	%	108			30-130	Pass	
LCS - % Recovery							
Chromium (hexavalent)	%	95			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	107			80-120	Pass	
Barium	%	111			80-120	Pass	
Beryllium	%	100			80-120	Pass	
Boron	%	116			80-120	Pass	
Cadmium	%	108			80-120	Pass	
Chromium	%	106			80-120	Pass	
Cobalt	%	106			80-120	Pass	
Copper	%	101			80-120	Pass	
Lead	%	111			80-120	Pass	
Manganese	%	99			80-120	Pass	
Mercury	%	93			75-125	Pass	
Nickel	%	98			80-120	Pass	
Vanadium	%	98			80-120	Pass	
Zinc	%	102			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M18-Fe05080	NCP	%	105			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M18-Fe05080	NCP	%	74			70-130	Pass	
Toluene	M18-Fe05080	NCP	%	79			70-130	Pass	
Ethylbenzene	M18-Fe05080	NCP	%	87			70-130	Pass	
m&p-Xylenes	M18-Fe05080	NCP	%	88			70-130	Pass	
o-Xylene	M18-Fe05080	NCP	%	89			70-130	Pass	
Xylenes - Total	M18-Fe05080	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M18-Fe05080	NCP	%	106			70-130	Pass	
TRH C6-C10	M18-Fe05080	NCP	%	104			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S18-Fe09513	NCP	%	87			70-130	Pass	
Acenaphthylene	S18-Fe09513	NCP	%	86			70-130	Pass	
Anthracene	S18-Fe09513	NCP	%	94			70-130	Pass	
Benz(a)anthracene	S18-Fe09513	NCP	%	82			70-130	Pass	
Benzo(a)pyrene	S18-Fe09513	NCP	%	87			70-130	Pass	
Benzo(b&j)fluoranthene	S18-Fe09513	NCP	%	89			70-130	Pass	
Benzo(g.h.i)perylene	S18-Fe09513	NCP	%	88			70-130	Pass	
Benzo(k)fluoranthene	S18-Fe09513	NCP	%	87			70-130	Pass	
Chrysene	S18-Fe09513	NCP	%	97			70-130	Pass	
Dibenz(a.h)anthracene	S18-Fe09513	NCP	%	99			70-130	Pass	
Fluoranthene	S18-Fe09513	NCP	%	82			70-130	Pass	
Fluorene	S18-Fe09513	NCP	%	85			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S18-Fe09513	NCP	%	94			70-130	Pass	
Naphthalene	S18-Fe09513	NCP	%	91			70-130	Pass	
Phenanthrene	S18-Fe09513	NCP	%	80			70-130	Pass	
Pyrene	S18-Fe09513	NCP	%	84			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chromium (hexavalent)	M18-Fe07010	NCP	%	86			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	B18-Fe02233	NCP	%	106			75-125	Pass	
Barium	B18-Fe02233	NCP	%	107			75-125	Pass	
Beryllium	B18-Fe02233	NCP	%	105			75-125	Pass	
Boron	B18-Fe02233	NCP	%	81			75-125	Pass	
Cadmium	B18-Fe02233	NCP	%	109			75-125	Pass	
Chromium	B18-Fe02233	NCP	%	106			75-125	Pass	
Cobalt	B18-Fe02233	NCP	%	107			75-125	Pass	
Copper	B18-Fe02233	NCP	%	104			75-125	Pass	
Lead	B18-Fe02233	NCP	%	108			75-125	Pass	
Manganese	B18-Fe02233	NCP	%	98			75-125	Pass	
Mercury	B18-Fe02233	NCP	%	95			70-130	Pass	
Nickel	B18-Fe02233	NCP	%	102			75-125	Pass	
Vanadium	B18-Fe02233	NCP	%	102			75-125	Pass	
Zinc	B18-Fe02233	NCP	%	101			75-125	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDD	M18-Fe06724	NCP	%	122			70-130	Pass	
4.4'-DDE	M18-Fe06724	NCP	%	123			70-130	Pass	
4.4'-DDT	M18-Fe06724	NCP	%	101			70-130	Pass	
a-BHC	M18-Fe06724	NCP	%	105			70-130	Pass	
Aldrin	M18-Fe06724	NCP	%	118			70-130	Pass	
b-BHC	M18-Fe06724	NCP	%	102			70-130	Pass	
d-BHC	M18-Fe06724	NCP	%	108			70-130	Pass	
Dieldrin	M18-Fe06724	NCP	%	113			70-130	Pass	
Endosulfan I	M18-Fe06724	NCP	%	110			70-130	Pass	
Endosulfan II	M18-Fe06724	NCP	%	113			70-130	Pass	
Endosulfan sulphate	M18-Fe06724	NCP	%	113			70-130	Pass	
Endrin	M18-Fe06724	NCP	%	121			70-130	Pass	
Endrin aldehyde	M18-Fe06724	NCP	%	92			70-130	Pass	
Endrin ketone	M18-Fe06724	NCP	%	102			70-130	Pass	
g-BHC (Lindane)	M18-Fe06724	NCP	%	107			70-130	Pass	
Heptachlor	M18-Fe06724	NCP	%	103			70-130	Pass	
Heptachlor epoxide	M18-Fe06724	NCP	%	115			70-130	Pass	
Hexachlorobenzene	M18-Fe06724	NCP	%	101			70-130	Pass	
Methoxychlor	M18-Fe06724	NCP	%	105			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	B18-Fe02229	NCP	%	114			70-130	Pass	
Dimethoate	B18-Fe02229	NCP	%	71			70-130	Pass	
Ethion	B18-Fe02229	NCP	%	101			70-130	Pass	
Fenitrothion	B18-Fe02229	NCP	%	78			70-130	Pass	
Methyl parathion	B18-Fe02229	NCP	%	71			70-130	Pass	
Mevinphos	B18-Fe02229	NCP	%	105			70-130	Pass	
Spike - % Recovery									
Acid Herbicides				Result 1					
2.4-D	M18-Fe08364	NCP	%	93			70-130	Pass	
Actril (loxynil)	M18-Fe08364	NCP	%	102			70-130	Pass	
Dichlorprop	M18-Fe08364	NCP	%	98			70-130	Pass	
MCPA	M18-Fe08364	NCP	%	100			70-130	Pass	
MCPB	M18-Fe08364	NCP	%	93			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	B18-Fe02231	NCP	%	71			30-130	Pass	
2.4-Dichlorophenol	B18-Fe02231	NCP	%	70			30-130	Pass	
2.4.5-Trichlorophenol	B18-Fe02231	NCP	%	79			30-130	Pass	
2.4.6-Trichlorophenol	B18-Fe02231	NCP	%	55			30-130	Pass	
2.6-Dichlorophenol	B18-Fe02231	NCP	%	70			30-130	Pass	
4-Chloro-3-methylphenol	B18-Fe02231	NCP	%	71			30-130	Pass	
Pentachlorophenol	B18-Fe02231	NCP	%	83			30-130	Pass	
Tetrachlorophenols - Total	B18-Fe02231	NCP	%	68			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	B18-Fe02231	NCP	%	77			30-130	Pass	
2-Methyl-4.6-dinitrophenol	B18-Fe02231	NCP	%	46			30-130	Pass	
2-Methylphenol (o-Cresol)	B18-Fe02231	NCP	%	77			30-130	Pass	
2-Nitrophenol	B18-Fe02231	NCP	%	76			30-130	Pass	
2.4-Dimethylphenol	B18-Fe02231	NCP	%	70			30-130	Pass	
2.4-Dinitrophenol	B18-Fe02231	NCP	%	90			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	B18-Fe02231	NCP	%	74			30-130	Pass	
4-Nitrophenol	B18-Fe02231	NCP	%	72			30-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dinoseb	B18-Fe02231	NCP	%	43			30-130	Pass	
Phenol	B18-Fe02231	NCP	%	81			30-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M18-Fe04930	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M18-Fe04930	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M18-Fe04930	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M18-Fe04930	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M18-Fe04930	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M18-Fe04930	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	M18-Fe04930	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M18-Fe04930	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M18-Fe04930	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chromium (hexavalent)	M18-Fe04722	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
% Moisture	M18-Fe06069	NCP	%	2.9	2.7	7.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	B18-Fe02232	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Barium	B18-Fe02232	NCP	mg/kg	38	37	1.0	30%	Pass	
Beryllium	B18-Fe02232	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Boron	B18-Fe02232	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Cadmium	B18-Fe02232	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	B18-Fe02232	NCP	mg/kg	7.2	6.7	6.0	30%	Pass	
Cobalt	B18-Fe02232	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	B18-Fe02232	NCP	mg/kg	< 5	5.2	16	30%	Pass	
Lead	B18-Fe02232	NCP	mg/kg	150	160	10	30%	Pass	
Manganese	B18-Fe02232	NCP	mg/kg	39	43	11	30%	Pass	
Mercury	B18-Fe02232	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	B18-Fe02232	NCP	mg/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Vanadium	B18-Fe02232	NCP	mg/kg	12	12	2.0	30%	Pass	
Zinc	B18-Fe02232	NCP	mg/kg	160	170	9.0	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	Z18-Fe01642	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	Z18-Fe01642	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	Z18-Fe01642	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	Z18-Fe01642	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	Z18-Fe01642	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	Z18-Fe01642	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	Z18-Fe01642	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	Z18-Fe01642	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	Z18-Fe01642	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	Z18-Fe01642	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	Z18-Fe01642	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M18-Fe08515	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	Z18-Fe01642	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	Z18-Fe01642	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	Z18-Fe01642	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	Z18-Fe01642	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	Z18-Fe01642	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	Z18-Fe01642	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	Z18-Fe01642	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	Z18-Fe01642	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	Z18-Fe01642	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	B18-Fe02230	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	B18-Fe02230	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	B18-Fe02230	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Pirimiphos-methyl	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Acid Herbicides				Result 1	Result 2	RPD			
2.4-D	M18-Fe08363	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-DB	M18-Fe08363	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.5-T	M18-Fe08363	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.5-TP	M18-Fe08363	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Actril (loxynil)	M18-Fe08363	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Dicamba	M18-Fe08363	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Dichlorprop	M18-Fe08363	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Dinitro-o-cresol	M18-Fe08363	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Dinoseb	M18-Fe08363	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
MCPA	M18-Fe08363	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
MCPB	M18-Fe08363	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Mecoprop	M18-Fe08363	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	B18-Fe02230	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	B18-Fe02230	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	B18-Fe02230	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	B18-Fe02230	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	B18-Fe02230	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	B18-Fe02230	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	B18-Fe02230	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	B18-Fe02230	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	B18-Fe02230	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	B18-Fe02230	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	B18-Fe02230	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	B18-Fe02230	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	B18-Fe02230	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	B18-Fe02230	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Comments

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Michael Cassidy	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

SEMF (TAS) Pty Ltd
5/40 Molle St
Hobart
TAS 7000

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Fiona Keserue Ponte**

Report **586154-S**
Project name OATLANDS DSI
Project ID 4193.005
Received Date Feb 22, 2018

Client Sample ID			**TRIPLICATE 2**	**TRIPLICATE 4**
Sample Matrix			**Soil**	**Soil**
Eurofins | mgt Sample No.			**M18-Fe27202**	**M18-Fe27203**
Date Sampled			**Feb 20, 2018**	**Feb 20, 2018**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	520
TRH C15-C28	50	mg/kg	< 50	1500
TRH C29-C36	50	mg/kg	< 100	< 50
TRH C10-36 (Total)	50	mg/kg	< 100	2020
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	73	86
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	1000
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	1000
TRH >C16-C34	100	mg/kg	< 100	1000
TRH >C34-C40	100	mg/kg	< 100	< 100
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5

Client Sample ID			TRIPLICATE 2	TRIPLICATE 4
Sample Matrix			Soil	Soil
Eurofins | mgt Sample No.			M18-Fe27202	M18-Fe27203
Date Sampled			Feb 20, 2018	Feb 20, 2018
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	106	87
p-Terphenyl-d14 (surr.)	1	%	85	72
Phenols (Halogenated)				
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1	< 1
2.4.6-Trichlorophenol	1.0	mg/kg	< 1	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5
4-Chloro-3-methylphenol	1.0	mg/kg	< 1	< 1
Pentachlorophenol	1.0	mg/kg	< 1	< 1
Tetrachlorophenols - Total	1.0	mg/kg	< 1	< 1
Total Halogenated Phenol*	1	mg/kg	< 1	< 1
Phenols (non-Halogenated)				
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2
2-Nitrophenol	1.0	mg/kg	< 1	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4
4-Nitrophenol	5	mg/kg	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20
Phenol	0.5	mg/kg	< 0.5	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20
Phenol-d6 (surr.)	1	%	107	90
Heavy Metals				
Lead	5	mg/kg	45	60
% Moisture	1	%	30	16

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Feb 24, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C36			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 24, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 24, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
BTEX and Naphthalene			
BTEX	Melbourne	Feb 24, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Melbourne	Feb 24, 2018	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soils by GCMS			
Heavy Metals	Melbourne	Feb 24, 2018	180 Day
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
Phenols (IWRG 621)			
Phenols (Halogenated)	Melbourne	Feb 24, 2018	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soils by GCMS			
Phenols (non-Halogenated)	Melbourne	Feb 24, 2018	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soils by GCMS			
% Moisture	Melbourne	Feb 23, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

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NATA # 1261
Site # 23736

Company Name: SEMF (TAS) Pty Ltd
Address: 5/40 Molle St
Hobart
TAS 7000

Project Name: OATLANDS DSI
Project ID: 4193.005

Order No.:
Report #: 586154
Phone: 03 6212 4400
Fax: 03 6212 4475

Received: Feb 22, 2018 10:58 AM
Due: Mar 1, 2018
Priority: 5 Day
Contact Name: Fiona Keserue Ponte

Eurofins | mgt Analytical Services Manager : Michael Cassidy

Sample Detail						Lead	Polycyclic Aromatic Hydrocarbons	Phenols (IWRG 621)	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217											
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
External Laboratory											
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**						
1	TRIPLICATE 2	Feb 20, 2018		Soil	M18-Fe27202	X	X	X	X	X	X
2	TRIPLICATE 4	Feb 20, 2018		Soil	M18-Fe27203	X	X	X	X	X	X
Test Counts						2	2	2	2	2	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1.0	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1.0	Pass	
Pentachlorophenol	mg/kg	< 1			1.0	Pass	
Tetrachlorophenols - Total	mg/kg	< 1			1.0	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Nitrophenol	mg/kg	< 1			1.0	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Lead	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	82			70-130	Pass	
TRH C10-C14	%	73			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	71			70-130	Pass	
Toluene	%	74			70-130	Pass	
Ethylbenzene	%	79			70-130	Pass	
m&p-Xylenes	%	77			70-130	Pass	
Xylenes - Total	%	78			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	85			70-130	Pass	
TRH C6-C10	%	84			70-130	Pass	
TRH >C10-C16	%	76			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	98			70-130	Pass	
Acenaphthylene	%	109			70-130	Pass	
Anthracene	%	108			70-130	Pass	
Benz(a)anthracene	%	86			70-130	Pass	
Benzo(a)pyrene	%	75			70-130	Pass	
Benzo(b&j)fluoranthene	%	71			70-130	Pass	
Benzo(g.h.i)perylene	%	96			70-130	Pass	
Benzo(k)fluoranthene	%	74			70-130	Pass	
Chrysene	%	77			70-130	Pass	
Dibenz(a.h)anthracene	%	83			70-130	Pass	
Fluoranthene	%	94			70-130	Pass	
Fluorene	%	106			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	77			70-130	Pass	
Naphthalene	%	103			70-130	Pass	
Phenanthrene	%	116			70-130	Pass	
Pyrene	%	97			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	72			30-130	Pass	
2.4-Dichlorophenol	%	47			30-130	Pass	
2.4.5-Trichlorophenol	%	73			30-130	Pass	
2.4.6-Trichlorophenol	%	68			30-130	Pass	
2.6-Dichlorophenol	%	71			30-130	Pass	
4-Chloro-3-methylphenol	%	71			30-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Pentachlorophenol	%	52			30-130	Pass	
Tetrachlorophenols - Total	%	47			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	32			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	56			30-130	Pass	
2-Methylphenol (o-Cresol)	%	70			30-130	Pass	
2-Nitrophenol	%	78			30-130	Pass	
2.4-Dimethylphenol	%	71			30-130	Pass	
2.4-Dinitrophenol	%	34			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	72			30-130	Pass	
4-Nitrophenol	%	75			30-130	Pass	
Dinoseb	%	61			30-130	Pass	
Phenol	%	73			30-130	Pass	
LCS - % Recovery							
Heavy Metals							
Lead	%	113			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M18-Fe26844	NCP	%	74			70-130	Pass	
TRH C10-C14	M18-Fe27237	NCP	%	121			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M18-Fe26844	NCP	%	73			70-130	Pass	
Toluene	M18-Fe26844	NCP	%	74			70-130	Pass	
Ethylbenzene	M18-Fe26844	NCP	%	74			70-130	Pass	
m&p-Xylenes	M18-Fe26844	NCP	%	74			70-130	Pass	
o-Xylene	M18-Fe26844	NCP	%	73			70-130	Pass	
Xylenes - Total	M18-Fe26844	NCP	%	74			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M18-Fe26844	NCP	%	90			70-130	Pass	
TRH C6-C10	M18-Fe26844	NCP	%	72			70-130	Pass	
TRH >C10-C16	M18-Fe27237	NCP	%	124			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M18-Fe26827	NCP	%	77			70-130	Pass	
Acenaphthylene	M18-Fe26827	NCP	%	87			70-130	Pass	
Anthracene	M18-Fe26827	NCP	%	89			70-130	Pass	
Benz(a)anthracene	M18-Fe26827	NCP	%	m/i			70-130	Fail	Q08
Benzo(a)pyrene	M18-Fe26827	NCP	%	m/i			70-130	Fail	Q08
Benzo(b&j)fluoranthene	M18-Fe26827	NCP	%	117			70-130	Pass	
Benzo(g.h.i)perylene	M18-Fe26827	NCP	%	m/i			70-130	Fail	Q08
Benzo(k)fluoranthene	M18-Fe26827	NCP	%	79			70-130	Pass	
Chrysene	M18-Fe26827	NCP	%	m/i			70-130	Fail	Q08
Dibenz(a.h)anthracene	M18-Fe26827	NCP	%	119			70-130	Pass	
Fluoranthene	M18-Fe26827	NCP	%	m/i			70-130	Fail	Q08
Fluorene	M18-Fe26827	NCP	%	84			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M18-Fe26827	NCP	%	m/i			70-130	Fail	Q08
Naphthalene	M18-Fe26827	NCP	%	79			70-130	Pass	
Phenanthrene	M18-Fe26827	NCP	%	115			70-130	Pass	
Pyrene	M18-Fe26827	NCP	%	m/i			70-130	Fail	Q08
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M18-Fe30434	NCP	%	84			30-130	Pass	
2.4-Dichlorophenol	M18-Fe30434	NCP	%	97			30-130	Pass	
2.4.5-Trichlorophenol	M18-Fe30434	NCP	%	88			30-130	Pass	
2.4.6-Trichlorophenol	M18-Fe30434	NCP	%	84			30-130	Pass	
2.6-Dichlorophenol	M18-Fe30434	NCP	%	89			30-130	Pass	
4-Chloro-3-methylphenol	M18-Fe30434	NCP	%	90			30-130	Pass	
Pentachlorophenol	M18-Fe30434	NCP	%	77			30-130	Pass	
Tetrachlorophenols - Total	M18-Fe30434	NCP	%	90			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	M18-Fe30434	NCP	%	61			30-130	Pass	
2-Methyl-4.6-dinitrophenol	M18-Fe30434	NCP	%	77			30-130	Pass	
2-Methylphenol (o-Cresol)	M18-Fe30434	NCP	%	95			30-130	Pass	
2-Nitrophenol	M18-Fe30434	NCP	%	100			30-130	Pass	
2.4-Dimethylphenol	M18-Fe30434	NCP	%	96			30-130	Pass	
2.4-Dinitrophenol	M18-Fe30434	NCP	%	116			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M18-Fe30434	NCP	%	101			30-130	Pass	
4-Nitrophenol	M18-Fe30434	NCP	%	94			30-130	Pass	
Dinoseb	M18-Fe30434	NCP	%	84			30-130	Pass	
Phenol	M18-Fe30434	NCP	%	90			30-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M18-Fe26843	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M18-Fe31101	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M18-Fe31101	NCP	mg/kg	71	110	45	30%	Fail	Q15
TRH C29-C36	M18-Fe31101	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M18-Fe26843	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M18-Fe26843	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M18-Fe26843	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M18-Fe26843	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M18-Fe26843	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	M18-Fe26843	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M18-Fe26843	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M18-Fe26843	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	M18-Fe31101	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M18-Fe31101	NCP	mg/kg	100	150	35	30%	Fail	Q15
TRH >C34-C40	M18-Fe31101	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Dibenz(a.h)anthracene	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	M18-Fe27143	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	M18-Fe27143	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	M18-Fe27143	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	M18-Fe27143	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	M18-Fe27143	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M18-Fe27143	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M18-Fe27143	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M18-Fe27143	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	M18-Fe27143	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	M18-Fe27143	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M18-Fe27143	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	M18-Fe27143	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	M18-Fe27143	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	M18-Fe27143	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Lead	M18-Fe26069	NCP	mg/kg	71	68	5.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M18-Fe27202	CP	%	30	30	2.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Comments

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Michael Cassidy	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Michael Brancati	Senior Analyst-Inorganic (VIC)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

eurofins | mgt

30 years Testing For Life 1987–2017
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Certificate of Analysis

COVA (TAS) Pty Ltd
5/40 Molle St
Hobart
TAS 7000

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Fiona Keserue Ponte**

Report **601338-S**
Project name OATLANDS DSI - REMEDIATION
Project ID 4193.005
Received Date Jun 01, 2018

Client Sample ID			**VTRIPL 2**
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M18-Jn02620**
Date Sampled			**May 28, 2018**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-36 (Total)	50	mg/kg	< 50
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	83
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
% Moisture	1	%	4.9

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jun 06, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C36			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jun 06, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jun 06, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
BTEX and Naphthalene			
BTEX	Melbourne	Jun 06, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
% Moisture	Melbourne	Jun 04, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

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Perth
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NATA # 1261
Site # 23736

Company Name:	COVA (TAS) Pty Ltd	**Order No.:**	4193.005	**Received:**	Jun 1, 2018 3:15 PM
Address:	5/40 Molle St Hobart TAS 7000	**Report #:**	601338	**Due:**	Jun 8, 2018
		Phone:	03 6212 4400	**Priority:**	5 Day
		Fax:	03 6212 4475	**Contact Name:**	Fiona Keserue Ponte
Project Name:	OATLANDS DSI - REMEDIATION				
Project ID:	4193.005				

Eurofins | mgt Analytical Services Manager : Michael Cassidy

Sample Detail						BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	VTRIPL 2	May 28, 2018		Soil	M18-Jn02620	X	X	X
Test Counts						1	1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	94			70-130	Pass	
TRH C10-C14	%	85			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	87			70-130	Pass	
Toluene	%	94			70-130	Pass	
Ethylbenzene	%	103			70-130	Pass	
m&p-Xylenes	%	106			70-130	Pass	
Xylenes - Total	%	105			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	96			70-130	Pass	
TRH C6-C10	%	89			70-130	Pass	
TRH >C10-C16	%	78			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M18-Jn05617	NCP	%	84			70-130	Pass	
TRH C10-C14	S18-Jn01339	NCP	%	72			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M18-Jn05617	NCP	%	77			70-130	Pass	
Toluene	M18-Jn05617	NCP	%	88			70-130	Pass	
Ethylbenzene	M18-Jn05617	NCP	%	100			70-130	Pass	
m&p-Xylenes	M18-Jn05617	NCP	%	102			70-130	Pass	
o-Xylene	M18-Jn05617	NCP	%	100			70-130	Pass	
Xylenes - Total	M18-Jn05617	NCP	%	101			70-130	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M18-Jn05617	NCP	%	91			70-130	Pass	
TRH C6-C10	M18-Jn05617	NCP	%	82			70-130	Pass	
TRH >C10-C16	S18-Jn01339	NCP	%	71			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S18-Jn04318	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S18-Jn01338	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S18-Jn01338	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S18-Jn01338	NCP	mg/kg	53	< 50	29	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S18-Jn04318	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S18-Jn04318	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S18-Jn04318	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S18-Jn04318	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S18-Jn04318	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S18-Jn04318	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S18-Jn04318	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S18-Jn04318	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S18-Jn01338	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S18-Jn01338	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S18-Jn01338	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S18-Jn01370	NCP	%	1.9	2.4	22	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.

Authorised By

Michael Cassidy	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

COVA (TAS) Pty Ltd
5/40 Molle St
Hobart
TAS 7000

Attention: **Fiona Keserue Ponte**

Report **601850-S**
Project name OATLANDS DSI - REMEDIATION
Project ID 4193.005
Received Date Jun 05, 2018

Client Sample ID			**TRIPL 2**
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M18-Jn06622**
Date Sampled			**Jun 01, 2018**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	230
TRH C29-C36	50	mg/kg	190
TRH C10-36 (Total)	50	mg/kg	420
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	57
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	300
TRH >C34-C40	100	mg/kg	140
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5

Client Sample ID			TRIPL 2
Sample Matrix			Soil
Eurofins | mgt Sample No.			M18-Jn06622
Date Sampled			Jun 01, 2018
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	95
p-Terphenyl-d14 (surr.)	1	%	83
Organochlorine Pesticides			
4.4'-DDD	0.05	mg/kg	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	< 0.05
Polychlorinated Biphenyls			
Aroclor-1016	0.1	mg/kg	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1
Total PCB*	0.1	mg/kg	< 0.1
Dibutylchlorendate (surr.)	1	%	99
Tetrachloro-m-xylene (surr.)	1	%	104
Phenols (Halogenated)			
2-Chlorophenol	0.5	mg/kg	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1
2.4.6-Trichlorophenol	1.0	mg/kg	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5
4-Chloro-3-methylphenol	1.0	mg/kg	< 1
Pentachlorophenol	1.0	mg/kg	< 1
Tetrachlorophenols - Total	1.0	mg/kg	< 1
Total Halogenated Phenol*	1	mg/kg	< 1
Phenols (non-Halogenated)			
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2
2-Nitrophenol	1.0	mg/kg	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4
4-Nitrophenol	5	mg/kg	< 5
Dinoseb	20	mg/kg	< 20
Phenol	0.5	mg/kg	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20
Phenol-d6 (surr.)	1	%	79

Client Sample ID			TRIPL 2
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M18-Jn06622**
Date Sampled			**Jun 01, 2018**
Test/Reference	LOR	Unit	
Chromium (hexavalent)	1	mg/kg	< 1
Cyanide (total)	5	mg/kg	< 5
Fluoride	100	mg/kg	< 100
% Moisture	1	%	15
Heavy Metals			
Arsenic	2	mg/kg	3.3
Barium	10	mg/kg	140
Beryllium	2	mg/kg	< 2
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	25
Cobalt	5	mg/kg	11
Copper	5	mg/kg	31
Lead	5	mg/kg	210
Manganese	5	mg/kg	350
Mercury	0.1	mg/kg	0.9
Molybdenum	5	mg/kg	< 5
Nickel	5	mg/kg	14
Selenium	2	mg/kg	< 2
Silver	0.2	mg/kg	< 0.2
Tin	10	mg/kg	18
Zinc	5	mg/kg	160

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jun 08, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C36			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jun 08, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jun 08, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
BTEX	Melbourne	Jun 08, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Melbourne	Jun 08, 2018	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Organochlorine Pesticides	Melbourne	Jun 08, 2018	14 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Polychlorinated Biphenyls	Melbourne	Jun 08, 2018	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Chromium (hexavalent)	Melbourne	Jun 08, 2018	28 Day
- Method: APHA 3500-Cr Hexavalent Chromium- (Extraction:- USEPA3060)			
Cyanide (total)	Melbourne	Jun 08, 2018	14 Day
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Fluoride	Melbourne	Jun 09, 2018	28 Day
- Method: LTM-INO-4150 Determination of Total Fluoride PART A – CIC			
Heavy Metals	Melbourne	Jun 08, 2018	180 Day
- Method: LTM-MET-3040 Metals in Waters Solids Soils & Sediments by ICP-MS			
Phenols (IWRG 621)			
Phenols (Halogenated)	Melbourne	Jun 08, 2018	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Jun 08, 2018	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
% Moisture	Melbourne	Jun 06, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

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Project Name: OATLANDS DSI - REMEDIATION
Project ID: 4193.005

Order No.:
Report #: 601850
Phone: 03 6212 4400
Fax: 03 6212 4475

Received: Jun 5, 2018 4:31 PM
Due: Jun 13, 2018
Priority: 5 Day
Contact Name: Fiona Keserue Ponte

Eurofins | mgt Analytical Services Manager : Michael Cassidy

Sample Detail						4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	Arsenic	Barium	Beryllium	Cadmium	Chromium	Chromium (hexavalent)	Cobalt	Copper	Cyanide (total)	Dieldrin	Fluoride	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Tin	Zinc	Polycyclic Aromatic Hydrocarbons	Polychlorinated Biphenyls	Phenols (IWRG 621)	BTEX	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																																			
Brisbane Laboratory - NATA Site # 20794																																			
Perth Laboratory - NATA Site # 23736																																			
External Laboratory																																			
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**																														
1	TRIPL 2	Jun 01, 2018		Soil	M18-Jn06622	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Test Counts						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1.0	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1.0	Pass	
Pentachlorophenol	mg/kg	< 1			1.0	Pass	
Tetrachlorophenols - Total	mg/kg	< 1			1.0	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Nitrophenol	mg/kg	< 1			1.0	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Cyanide (total)	mg/kg	< 5			5	Pass	
Fluoride	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Barium	mg/kg	< 10			10	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Molybdenum	mg/kg	< 5			5	Pass	
Nickel	mg/kg	< 5			5	Pass	
Selenium	mg/kg	< 2			2	Pass	
Silver	mg/kg	< 0.2			0.2	Pass	
Tin	mg/kg	< 10			10	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	71			70-130	Pass	
TRH C10-C14	%	88			70-130	Pass	
LCS - % Recovery							
BTEX							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzene	%	76			70-130	Pass	
Toluene	%	76			70-130	Pass	
Ethylbenzene	%	77			70-130	Pass	
m&p-Xylenes	%	77			70-130	Pass	
Xylenes - Total	%	77			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	75			70-130	Pass	
TRH C6-C10	%	75			70-130	Pass	
TRH >C10-C16	%	85			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	71			70-130	Pass	
Acenaphthylene	%	70			70-130	Pass	
Anthracene	%	78			70-130	Pass	
Benz(a)anthracene	%	78			70-130	Pass	
Benzo(a)pyrene	%	71			70-130	Pass	
Benzo(b&j)fluoranthene	%	75			70-130	Pass	
Benzo(g.h.i)perylene	%	80			70-130	Pass	
Benzo(k)fluoranthene	%	87			70-130	Pass	
Chrysene	%	82			70-130	Pass	
Dibenz(a.h)anthracene	%	88			70-130	Pass	
Fluoranthene	%	80			70-130	Pass	
Fluorene	%	74			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	84			70-130	Pass	
Naphthalene	%	72			70-130	Pass	
Phenanthrene	%	78			70-130	Pass	
Pyrene	%	78			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
4.4'-DDD	%	123			70-130	Pass	
4.4'-DDE	%	129			70-130	Pass	
4.4'-DDT	%	114			70-130	Pass	
Aldrin	%	113			70-130	Pass	
Dieldrin	%	112			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	81			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	64			30-130	Pass	
2.4-Dichlorophenol	%	87			30-130	Pass	
2.4.5-Trichlorophenol	%	39			30-130	Pass	
2.4.6-Trichlorophenol	%	40			30-130	Pass	
2.6-Dichlorophenol	%	74			30-130	Pass	
4-Chloro-3-methylphenol	%	81			30-130	Pass	
Pentachlorophenol	%	33			30-130	Pass	
Tetrachlorophenols - Total	%	60			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	42			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	52			30-130	Pass	
2-Methylphenol (o-Cresol)	%	55			30-130	Pass	
2-Nitrophenol	%	65			30-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2.4-Dimethylphenol	%	65			30-130	Pass	
2.4-Dinitrophenol	%	59			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	58			30-130	Pass	
4-Nitrophenol	%	47			30-130	Pass	
Dinoseb	%	31			30-130	Pass	
Phenol	%	66			30-130	Pass	
LCS - % Recovery							
Chromium (hexavalent)	%	89			70-130	Pass	
Cyanide (total)	%	95			70-130	Pass	
Fluoride	%	102			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	81			80-120	Pass	
Barium	%	89			80-120	Pass	
Beryllium	%	92			80-120	Pass	
Cadmium	%	83			80-120	Pass	
Chromium	%	82			80-120	Pass	
Cobalt	%	85			80-120	Pass	
Copper	%	80			80-120	Pass	
Lead	%	87			80-120	Pass	
Manganese	%	81			80-120	Pass	
Mercury	%	85			75-125	Pass	
Molybdenum	%	102			80-120	Pass	
Nickel	%	103			80-120	Pass	
Selenium	%	110			80-120	Pass	
Silver	%	84			80-120	Pass	
Tin	%	85			80-120	Pass	
Zinc	%	82			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M18-Jn06949	NCP	%	75			70-130	Pass	
TRH C10-C14	M18-Jn07381	NCP	%	75			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M18-Jn06949	NCP	%	79			70-130	Pass	
Toluene	M18-Jn06949	NCP	%	81			70-130	Pass	
Ethylbenzene	M18-Jn06949	NCP	%	85			70-130	Pass	
m&p-Xylenes	M18-Jn06949	NCP	%	85			70-130	Pass	
o-Xylene	M18-Jn06949	NCP	%	84			70-130	Pass	
Xylenes - Total	M18-Jn06949	NCP	%	85			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M18-Jn06949	NCP	%	87			70-130	Pass	
TRH C6-C10	M18-Jn06949	NCP	%	81			70-130	Pass	
TRH >C10-C16	M18-Jn07381	NCP	%	70			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M18-Jn08232	NCP	%	80			70-130	Pass	
Acenaphthylene	M18-Jn08232	NCP	%	84			70-130	Pass	
Anthracene	M18-Jn08232	NCP	%	83			70-130	Pass	
Benz(a)anthracene	M18-Jn08232	NCP	%	89			70-130	Pass	
Benzo(a)pyrene	M18-Jn08232	NCP	%	81			70-130	Pass	
Benzo(b&j)fluoranthene	M18-Jn08232	NCP	%	74			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(g.h.i)perylene	M18-Jn08232	NCP	%	109			70-130	Pass	
Benzo(k)fluoranthene	M18-Jn08232	NCP	%	81			70-130	Pass	
Chrysene	M18-Jn08232	NCP	%	88			70-130	Pass	
Dibenz(a.h)anthracene	M18-Jn08232	NCP	%	114			70-130	Pass	
Fluoranthene	M18-Jn08232	NCP	%	92			70-130	Pass	
Fluorene	M18-Jn08232	NCP	%	82			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M18-Jn08232	NCP	%	112			70-130	Pass	
Naphthalene	M18-Jn08232	NCP	%	83			70-130	Pass	
Phenanthrene	M18-Jn08232	NCP	%	80			70-130	Pass	
Pyrene	M18-Jn08232	NCP	%	90			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
4.4'-DDD	S18-Jn04352	NCP	%	128			70-130	Pass	
4.4'-DDE	S18-Jn04352	NCP	%	119			70-130	Pass	
4.4'-DDT	S18-Jn04352	NCP	%	103			70-130	Pass	
Aldrin	S18-Jn04362	NCP	%	114			70-130	Pass	
Dieldrin	S18-Jn04362	NCP	%	116			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1260	S18-Jn05739	NCP	%	100			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M18-Jn08232	NCP	%	76			30-130	Pass	
2.4-Dichlorophenol	M18-Jn08232	NCP	%	93			30-130	Pass	
2.4.5-Trichlorophenol	M18-Jn08232	NCP	%	78			30-130	Pass	
2.4.6-Trichlorophenol	M18-Jn08232	NCP	%	80			30-130	Pass	
2.6-Dichlorophenol	M18-Jn08232	NCP	%	85			30-130	Pass	
4-Chloro-3-methylphenol	M18-Jn08232	NCP	%	111			30-130	Pass	
Pentachlorophenol	M18-Jn08232	NCP	%	38			30-130	Pass	
Tetrachlorophenols - Total	M18-Jn08232	NCP	%	71			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	M18-Jn08232	NCP	%	56			30-130	Pass	
2-Methyl-4.6-dinitrophenol	M18-Jn08232	NCP	%	41			30-130	Pass	
2-Methylphenol (o-Cresol)	M18-Jn08232	NCP	%	70			30-130	Pass	
2-Nitrophenol	M18-Jn08232	NCP	%	93			30-130	Pass	
2.4-Dimethylphenol	M18-Jn08232	NCP	%	104			30-130	Pass	
2.4-Dinitrophenol	M18-Jn08232	NCP	%	44			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M18-Jn08232	NCP	%	76			30-130	Pass	
4-Nitrophenol	M18-Jn08232	NCP	%	66			30-130	Pass	
Dinoseb	M18-Jn08232	NCP	%	46			30-130	Pass	
Phenol	M18-Jn08232	NCP	%	82			30-130	Pass	
Spike - % Recovery									
				Result 1					
Chromium (hexavalent)	M18-Jn08974	NCP	%	95			70-130	Pass	
Cyanide (total)	M18-Jn06964	NCP	%	46			70-130	Fail	Q08
Fluoride	M18-Jn06417	NCP	%	95			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M18-Jn06576	NCP	%	93			75-125	Pass	
Barium	M18-Jn10136	NCP	%	150			75-125	Fail	Q08
Beryllium	M18-Jn06576	NCP	%	114			75-125	Pass	
Cadmium	M18-Jn06576	NCP	%	103			75-125	Pass	
Chromium	M18-Jn06576	NCP	%	126			75-125	Fail	Q08

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Cobalt	M18-Jn06576	NCP	%	104			75-125	Pass	
Copper	M18-Jn06576	NCP	%	109			75-125	Pass	
Lead	M18-Jn06576	NCP	%	67			75-125	Fail	Q08
Mercury	M18-Jn06576	NCP	%	133			70-130	Fail	Q08
Molybdenum	M18-Jn06576	NCP	%	99			75-125	Pass	
Nickel	M18-Jn06576	NCP	%	99			75-125	Pass	
Selenium	M18-Jn06576	NCP	%	89			75-125	Pass	
Silver	M18-Jn06576	NCP	%	100			75-125	Pass	
Tin	M18-Jn06576	NCP	%	109			75-125	Pass	
Zinc	M18-Jn06576	NCP	%	122			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M18-Jn06415	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S18-Jn06129	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S18-Jn06129	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S18-Jn06129	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M18-Jn06415	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M18-Jn06415	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M18-Jn06415	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M18-Jn06415	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M18-Jn06415	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	M18-Jn06415	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M18-Jn06415	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M18-Jn06415	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S18-Jn06129	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S18-Jn06129	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S18-Jn06129	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
4.4'-DDD	S18-Jn04361	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S18-Jn04361	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S18-Jn04361	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S18-Jn04361	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S18-Jn04361	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S18-Jn04361	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	S18-Jn04361	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S18-Jn04361	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	S18-Jn04361	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	S18-Jn04361	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	S18-Jn04361	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	S18-Jn04361	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	S18-Jn04361	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	

Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M18-Jn06829	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	M18-Jn06829	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	M18-Jn06829	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	M18-Jn06829	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	M18-Jn06829	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	M18-Jn06829	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	M18-Jn06829	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	M18-Jn06829	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M18-Jn06829	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M18-Jn06829	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M18-Jn06829	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	M18-Jn06829	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	M18-Jn06829	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	M18-Jn06829	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M18-Jn06829	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	M18-Jn06829	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	M18-Jn06829	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	M18-Jn06829	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chromium (hexavalent)	M18-Jn10274	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Cyanide (total)	M18-Jn10275	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Fluoride	M18-Jn09731	NCP	mg/kg	< 100	130	64	30%	Fail	Q15
% Moisture	M18-Jn06609	NCP	%	24	22	6.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M18-Jn06576	NCP	mg/kg	3.4	3.3	3.0	30%	Pass	
Barium	M18-Jn06576	NCP	mg/kg	280	290	2.0	30%	Pass	
Beryllium	M18-Jn06576	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	M18-Jn06576	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M18-Jn06576	NCP	mg/kg	47	48	2.0	30%	Pass	
Cobalt	M18-Jn06576	NCP	mg/kg	15	15	1.0	30%	Pass	
Copper	M18-Jn06576	NCP	mg/kg	24	24	1.0	30%	Pass	
Lead	M18-Jn06576	NCP	mg/kg	120	130	2.0	30%	Pass	
Manganese	M18-Jn06576	NCP	mg/kg	290	290	2.0	30%	Pass	
Mercury	M18-Jn06576	NCP	mg/kg	0.4	0.4	2.0	30%	Pass	
Molybdenum	M18-Jn06576	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Nickel	M18-Jn06576	NCP	mg/kg	53	54	1.0	30%	Pass	
Selenium	M18-Jn06576	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Silver	M18-Jn06576	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tin	M18-Jn06576	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Zinc	M18-Jn06576	NCP	mg/kg	99	100	1.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Michael Cassidy	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Michael Brancati	Senior Analyst-Inorganic (VIC)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

eurofins | mgt

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Certificate of Analysis

COVA (TAS) Pty Ltd
5/40 Molle St
Hobart
TAS 7000

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Fiona Keserue Ponte**

Report **601851-S**
Project name OATLANDS DSI AND REMEDIATION
Project ID 4193.005
Received Date Jun 05, 2018

Client Sample ID			**TRIPL2 30/5**
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M18-Jn06623**
Date Sampled			**May 30, 2018**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-36 (Total)	50	mg/kg	< 50
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	55
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
% Moisture	1	%	17

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jun 08, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C36			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jun 08, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jun 08, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
BTEX and Naphthalene			
BTEX	Melbourne	Jun 08, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
% Moisture	Melbourne	Jun 06, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

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NATA # 1261 Site # 20794

Perth
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Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	COVA (TAS) Pty Ltd	**Order No.:**	4193.005	**Received:**	Jun 5, 2018 4:32 PM
Address:	5/40 Molle St Hobart TAS 7000	**Report #:**	601851	**Due:**	Jun 13, 2018
		Phone:	03 6212 4400	**Priority:**	5 Day
		Fax:	03 6212 4475	**Contact Name:**	Fiona Keserue Ponte
Project Name:	OATLANDS DSI AND REMEDIATION				
Project ID:	4193.005				

Eurofins | mgt Analytical Services Manager : Michael Cassidy

Sample Detail						BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	TRIPL2 30/5	May 30, 2018		Soil	M18-Jn06623	X	X	X
Test Counts						1	1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	71			70-130	Pass	
TRH C10-C14	%	89			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	76			70-130	Pass	
Toluene	%	76			70-130	Pass	
Ethylbenzene	%	77			70-130	Pass	
m&p-Xylenes	%	77			70-130	Pass	
Xylenes - Total	%	77			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	75			70-130	Pass	
TRH C6-C10	%	75			70-130	Pass	
TRH >C10-C16	%	83			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M18-Jn06949	NCP	%	75			70-130	Pass	
TRH C10-C14	M18-Jn06495	NCP	%	77			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M18-Jn06949	NCP	%	79			70-130	Pass	
Toluene	M18-Jn06949	NCP	%	81			70-130	Pass	
Ethylbenzene	M18-Jn06949	NCP	%	85			70-130	Pass	
m&p-Xylenes	M18-Jn06949	NCP	%	85			70-130	Pass	
o-Xylene	M18-Jn06949	NCP	%	84			70-130	Pass	
Xylenes - Total	M18-Jn06949	NCP	%	85			70-130	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M18-Jn06949	NCP	%	87			70-130	Pass	
TRH C6-C10	M18-Jn06949	NCP	%	81			70-130	Pass	
TRH >C10-C16	M18-Jn06495	NCP	%	73			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M18-Jn06415	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M18-Jn05544	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M18-Jn05544	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M18-Jn05544	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M18-Jn06415	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M18-Jn06415	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M18-Jn06415	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M18-Jn06415	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M18-Jn06415	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	M18-Jn06415	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M18-Jn06415	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M18-Jn06415	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	M18-Jn05544	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M18-Jn05544	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M18-Jn05544	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M18-Jn06609	NCP	%	24	22	6.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.

Authorised By

Michael Cassidy	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Certificate of Analysis

COVA (TAS) Pty Ltd
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Hobart
TAS 7000

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Fiona Keserue Ponte**

Report **604769-S**
Project name OATLANDS DSI-REMEDIATION
Project ID 4193.005
Received Date Jun 26, 2018

Client Sample ID			**TRIPLICATE 2**
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M18-Jn30165**
Date Sampled			**Jun 21, 2018**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-36 (Total)	50	mg/kg	< 50
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	80
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
% Moisture	1	%	9.2

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jun 27, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C36			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jun 27, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jun 27, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
BTEX and Naphthalene			
BTEX	Melbourne	Jun 27, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
% Moisture	Melbourne	Jun 26, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

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Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	COVA (TAS) Pty Ltd	**Order No.:**	
Address:	5/40 Molle St Hobart TAS 7000	**Report #:**	604769
		Phone:	03 6212 4400
		Fax:	03 6212 4475
Project Name:	OATLANDS DSI-REMEDIATION		
Project ID:	4193.005		

Received:	Jun 26, 2018 2:03 PM	
Due:	Jul 3, 2018	
Priority:	5 Day	
Contact Name:	Fiona Keserue Ponte	

Eurofins | mgt Analytical Services Manager : Michael Cassidy

Sample Detail						BTEX	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	TRIPLICATE 2	Jun 21, 2018		Soil	M18-Jn30165	X	X	X
Test Counts						1	1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	125			70-130	Pass	
TRH C10-C14	%	118			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	94			70-130	Pass	
Toluene	%	93			70-130	Pass	
Ethylbenzene	%	95			70-130	Pass	
m&p-Xylenes	%	96			70-130	Pass	
Xylenes - Total	%	95			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	89			70-130	Pass	
TRH C6-C10	%	119			70-130	Pass	
TRH >C10-C16	%	113			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S18-Jn28240	NCP	%	101			70-130	Pass	
TRH C10-C14	M18-Jn34562	NCP	%	104			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S18-Jn28240	NCP	%	73			70-130	Pass	
Toluene	S18-Jn28240	NCP	%	78			70-130	Pass	
Ethylbenzene	S18-Jn28240	NCP	%	81			70-130	Pass	
m&p-Xylenes	S18-Jn28240	NCP	%	80			70-130	Pass	
o-Xylene	S18-Jn28240	NCP	%	79			70-130	Pass	
Xylenes - Total	S18-Jn28240	NCP	%	80			70-130	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S18-Jn28240	NCP	%	75			70-130	Pass	
TRH C6-C10	S18-Jn28240	NCP	%	97			70-130	Pass	
TRH >C10-C16	M18-Jn34562	NCP	%	96			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M18-Jn29214	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M18-Jn34561	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M18-Jn34561	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M18-Jn34561	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M18-Jn29214	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M18-Jn29214	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M18-Jn29214	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M18-Jn29214	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M18-Jn29214	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	M18-Jn29214	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M18-Jn29214	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M18-Jn29214	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	M18-Jn34561	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M18-Jn34561	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M18-Jn34561	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M18-Jn30067	NCP	%	26	26	1.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.

Authorised By

Michael Cassidy	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

COVA (TAS) Pty Ltd
5/40 Molle St
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TAS 7000

Attention: **Fiona Keserue Ponte**

Report **618082-S**
Project name OATLANDS DSI AND REMEDIATION
Project ID 4196.005
Received Date Sep 17, 2018

Client Sample ID			[G01] **TRIPLICATE 2**
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M18-Se21969**
Date Sampled			**Sep 12, 2018**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 100
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-36 (Total)	50	mg/kg	< 50
BTEX			
Benzene	0.1	mg/kg	< 0.5
Toluene	0.1	mg/kg	< 0.5
Ethylbenzene	0.1	mg/kg	< 0.5
m&p-Xylenes	0.2	mg/kg	< 1
o-Xylene	0.1	mg/kg	< 0.5
Xylenes - Total	0.3	mg/kg	< 1.5
4-Bromofluorobenzene (surr.)	1	%	63
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 2.5
TRH C6-C10	20	mg/kg	< 100
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 100
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
Chromium (hexavalent)	1	mg/kg	< 1
Chromium (trivalent)	5	mg/kg	20
% Moisture	1	%	20
Heavy Metals			
Arsenic	2	mg/kg	< 2
Barium	10	mg/kg	70
Beryllium	2	mg/kg	< 2
Boron	10	mg/kg	< 10
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	20
Cobalt	5	mg/kg	16

Client Sample ID			G01 TRIPLICATE 2
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M18-Se21969**
Date Sampled			**Sep 12, 2018**
Test/Reference	LOR	Unit	
Heavy Metals			
Copper	5	mg/kg	6.9
Lead	5	mg/kg	23
Manganese	5	mg/kg	80
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	12
Vanadium	10	mg/kg	32
Zinc	5	mg/kg	36

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Sep 19, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C36			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Sep 19, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Sep 19, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
BTEX and Naphthalene			
BTEX	Melbourne	Sep 19, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Chromium (hexavalent)	Melbourne	Sep 19, 2018	28 Day
- Method: APHA 3500-Cr Hexavalent Chromium- (Extraction:- USEPA3060)			
Heavy Metals	Melbourne	Sep 19, 2018	180 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Melbourne	Sep 18, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

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NATA # 1261 Site # 18217

Brisbane
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Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	COVA (TAS) Pty Ltd	**Order No.:**	4193.005	**Received:**	Sep 17, 2018 1:57 PM
Address:	5/40 Molle St Hobart TAS 7000	**Report #:**	618082	**Due:**	Sep 24, 2018
		Phone:	03 6212 4400	**Priority:**	5 Day
		Fax:	03 6212 4475	**Contact Name:**	Fiona Keserue Ponte
Project Name:	OATLANDS DSI AND REMEDIATION				
Project ID:	4196.005				

Eurofins | mgt Analytical Services Manager : Michael Cassidy

Sample Detail						NEPM 1999 Metals : Metals M15	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	TRIPLICATE 2	Sep 12, 2018		Soil	M18-Se21969	X	X	X	X
Test Counts						1	1	1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Barium	mg/kg	< 10			10	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Boron	mg/kg	< 10			10	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Vanadium	mg/kg	< 10			10	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	114			70-130	Pass	
TRH C10-C14	%	89			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	85			70-130	Pass	
Toluene	%	99			70-130	Pass	
Ethylbenzene	%	102			70-130	Pass	
m&p-Xylenes	%	102			70-130	Pass	
Xylenes - Total	%	102			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Naphthalene	%	98			70-130	Pass	
TRH C6-C10	%	115			70-130	Pass	
TRH >C10-C16	%	90			70-130	Pass	
LCS - % Recovery							
Chromium (hexavalent)	%	107			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	110			80-120	Pass	
Barium	%	115			80-120	Pass	
Beryllium	%	81			80-120	Pass	
Boron	%	86			80-120	Pass	
Cadmium	%	106			80-120	Pass	
Chromium	%	120			80-120	Pass	
Cobalt	%	118			80-120	Pass	
Copper	%	117			80-120	Pass	
Lead	%	115			80-120	Pass	
Manganese	%	117			80-120	Pass	
Mercury	%	114			75-125	Pass	
Nickel	%	116			80-120	Pass	
Vanadium	%	117			80-120	Pass	
Zinc	%	112			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M18-Se26261	NCP	%	104			70-130	Pass	
TRH C10-C14	M18-Se22118	NCP	%	91			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M18-Se26261	NCP	%	76			70-130	Pass	
Toluene	M18-Se26261	NCP	%	92			70-130	Pass	
Ethylbenzene	M18-Se26261	NCP	%	97			70-130	Pass	
m&p-Xylenes	M18-Se26261	NCP	%	99			70-130	Pass	
o-Xylene	M18-Se26261	NCP	%	99			70-130	Pass	
Xylenes - Total	M18-Se26261	NCP	%	99			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M18-Se26261	NCP	%	100			70-130	Pass	
TRH C6-C10	M18-Se26261	NCP	%	106			70-130	Pass	
TRH >C10-C16	M18-Se22118	NCP	%	94			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chromium (hexavalent)	M18-Se21969	CP	%	109			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M18-Se21259	NCP	%	108			75-125	Pass	
Barium	M18-Se21259	NCP	%	112			75-125	Pass	
Beryllium	M18-Se21259	NCP	%	96			75-125	Pass	
Boron	M18-Se21489	NCP	%	99			75-125	Pass	
Cadmium	M18-Se21259	NCP	%	103			75-125	Pass	
Chromium	M18-Se21259	NCP	%	112			75-125	Pass	
Cobalt	M18-Se21259	NCP	%	111			75-125	Pass	
Copper	M18-Se21259	NCP	%	106			75-125	Pass	
Lead	M18-Se21259	NCP	%	101			75-125	Pass	
Manganese	M18-Se21259	NCP	%	72			75-125	Fail	Q08

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Mercury	M18-Se21259	NCP	%	111			70-130	Pass	
Nickel	M18-Se21259	NCP	%	110			75-125	Pass	
Vanadium	M18-Se21259	NCP	%	115			75-125	Pass	
Zinc	M18-Se21259	NCP	%	81			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M18-Se26260	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S18-Se20380	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S18-Se20380	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S18-Se20380	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M18-Se26260	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M18-Se26260	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M18-Se26260	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M18-Se26260	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M18-Se26260	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	M18-Se26260	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M18-Se26260	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M18-Se26260	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S18-Se20380	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S18-Se20380	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S18-Se20380	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chromium (hexavalent)	M18-Se21503	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
% Moisture	M18-Se21922	NCP	%	13	13	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M18-Se22104	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Barium	M18-Se22104	NCP	mg/kg	46	47	1.0	30%	Pass	
Beryllium	M18-Se22104	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Boron	M18-Se21489	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Cadmium	M18-Se22104	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M18-Se22104	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Cobalt	M18-Se22104	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	M18-Se22104	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	M18-Se22104	NCP	mg/kg	7.7	7.6	1.0	30%	Pass	
Manganese	M18-Se22104	NCP	mg/kg	24	24	1.0	30%	Pass	
Mercury	M18-Se22104	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M18-Se22104	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Vanadium	M18-Se22104	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Zinc	M18-Se22104	NCP	mg/kg	10	10	1.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
G01	The LORs have been raised due to matrix interference
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference

Authorised By

Michael Cassidy	Analytical Services Manager
Chris Bennett	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Julie Kay	Senior Analyst-Inorganic (VIC)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

COVA (TAS) Pty Ltd
5/40 Molle St
Hobart
TAS 7000

Attention: **Fiona Keserue Ponte**

Report **626332-S**
Project name OATLANDS DSI AND REMEDIATION
Project ID 4193.005
Received Date Nov 07, 2018

Client Sample ID			**TRIPLICATE 2**
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M18-No07444**
Date Sampled			**Nov 01, 2018**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	77
TRH C29-C36	50	mg/kg	75
TRH C10-36 (Total)	50	mg/kg	152
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	150
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	150
TRH - 2013 NEPM Fractions (after silica gel clean-up)			
TRH >C10-C16 (after silica gel clean-up)	50	mg/kg	< 50
TRH >C16-C34 (after silica gel clean-up)	100	mg/kg	< 100
TRH >C34-C40 (after silica gel clean-up)	100	mg/kg	< 100
TRH - 1999 NEPM Fractions (after silica gel clean-up)			
TRH C10-C36 (Total) (after silica gel clean-up)	50	mg/kg	< 50
TRH C10-C14 (after silica gel clean-up)	20	mg/kg	< 20
TRH C15-C28 (after silica gel clean-up)	50	mg/kg	< 50
TRH C29-C36 (after silica gel clean-up)	50	mg/kg	< 50
Heavy Metals			
Arsenic	2	mg/kg	39
Barium	10	mg/kg	1700
Beryllium	2	mg/kg	< 2
Boron	10	mg/kg	22
Cadmium	0.4	mg/kg	8.1
Chromium	5	mg/kg	23
Cobalt	5	mg/kg	17
Copper	5	mg/kg	320
Lead	5	mg/kg	3400
Manganese	5	mg/kg	1100
Mercury	0.1	mg/kg	11

Client Sample ID			TRIPLICATE 2
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M18-No07444**
Date Sampled			**Nov 01, 2018**
Test/Reference	LOR	Unit	
Heavy Metals			
Nickel	5	mg/kg	64
Selenium	2	mg/kg	< 2
Vanadium	10	mg/kg	25
Zinc	5	mg/kg	7400
% Moisture	1	%	22

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Nov 09, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Nov 09, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Nov 09, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
TRH - 2013 NEPM Fractions (after silica gel clean-up)	Melbourne	Nov 09, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
TRH - 1999 NEPM Fractions (after silica gel clean-up)	Melbourne	Nov 09, 2018	14 Day
- Method: TRH C6-C36 (Silica Gel Cleanup) - MGT 100A			
NEPM Metals : Metals M15 (ex HexCr)	Melbourne	Nov 09, 2018	28 Day
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
% Moisture	Melbourne	Nov 07, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

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Site # 23736

Company Name:	COVA (TAS) Pty Ltd	**Order No.:**	4193.005	**Received:**	Nov 7, 2018 8:30 AM
Address:	5/40 Molle St Hobart TAS 7000	**Report #:**	626332	**Due:**	Nov 14, 2018
		Phone:	03 6212 4400	**Priority:**	5 Day
		Fax:	03 6212 4475	**Contact Name:**	Fiona Keserue Ponte
Project Name:	OATLANDS DSI AND REMEDIATION				
Project ID:	4193.005				

Eurofins | mgt Analytical Services Manager : Michael Cassidy

Sample Detail						TRH (after Silica Gel cleanup)	Moisture Set	Total Recoverable Hydrocarbons	NEPM Metals : Metals M15 (ex HexCr)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	TRIPLICATE 2	Nov 01, 2018		Soil	M18-No07444	X	X	X	X
Test Counts						1	1	1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Barium	mg/kg	< 10			10	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Boron	mg/kg	< 10			10	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Selenium	mg/kg	< 2			2	Pass	
Vanadium	mg/kg	< 10			10	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	94			70-130	Pass	
TRH C10-C14	%	79			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	88			70-130	Pass	
TRH C6-C10	%	92			70-130	Pass	
TRH >C10-C16	%	89			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	110			80-120	Pass	
Barium	%	107			80-120	Pass	
Beryllium	%	94			80-120	Pass	
Boron	%	119			80-120	Pass	
Cadmium	%	110			80-120	Pass	
Chromium	%	115			80-120	Pass	
Cobalt	%	114			80-120	Pass	
Copper	%	108			80-120	Pass	
Lead	%	112			80-120	Pass	
Manganese	%	119			80-120	Pass	
Mercury	%	94			75-125	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Nickel			%	107			80-120	Pass	
Selenium			%	99			80-120	Pass	
Vanadium			%	113			80-120	Pass	
Zinc			%	107			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S18-No06805	NCP	%	76			70-130	Pass	
TRH C10-C14	S18-No10496	NCP	%	80			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S18-No06805	NCP	%	85			70-130	Pass	
TRH C6-C10	S18-No06805	NCP	%	72			70-130	Pass	
TRH >C10-C16	S18-No10496	NCP	%	92			70-130	Pass	
Spike - % Recovery									
TRH - 2013 NEPM Fractions (after silica gel clean-up)				Result 1					
TRH >C10-C16 (after silica gel clean-up)	M18-No04179	NCP	%	82			70-130	Pass	
Spike - % Recovery									
TRH - 1999 NEPM Fractions (after silica gel clean-up)				Result 1					
TRH C10-C14 (after silica gel clean-up)	M18-No04179	NCP	%	80			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M18-No08653	NCP	%	117			75-125	Pass	
Barium	M18-No09843	NCP	%	70			75-125	Fail	Q08
Beryllium	M18-No09843	NCP	%	96			75-125	Pass	
Boron	M18-No09843	NCP	%	92			75-125	Pass	
Cadmium	M18-No08653	NCP	%	114			75-125	Pass	
Chromium	M18-No08653	NCP	%	117			75-125	Pass	
Cobalt	M18-No08653	NCP	%	107			75-125	Pass	
Copper	M18-No08653	NCP	%	104			75-125	Pass	
Lead	M18-No08653	NCP	%	114			75-125	Pass	
Mercury	M18-No09843	NCP	%	83			70-130	Pass	
Nickel	M18-No08653	NCP	%	109			75-125	Pass	
Selenium	M18-No08653	NCP	%	106			75-125	Pass	
Vanadium	M18-No08653	NCP	%	148			75-125	Fail	Q08
Zinc	M18-No09843	NCP	%	87			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M18-No10664	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S18-No10495	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S18-No10495	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S18-No10495	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M18-No10664	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M18-No10664	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S18-No10495	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S18-No10495	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S18-No10495	NCP	mg/kg	< 100	< 100	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M18-No08653	NCP	mg/kg	10	10	3.0	30%	Pass	
Barium	S18-No07318	NCP	mg/kg	49	49	1.0	30%	Pass	
Beryllium	S18-No07318	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Boron	M18-No04399	NCP	mg/kg	41	51	1.0	30%	Pass	
Cadmium	M18-No08653	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M18-No08653	NCP	mg/kg	24	25	3.0	30%	Pass	
Cobalt	M18-No08653	NCP	mg/kg	11	11	2.0	30%	Pass	
Copper	M18-No08653	NCP	mg/kg	24	24	2.0	30%	Pass	
Lead	M18-No08653	NCP	mg/kg	28	28	1.0	30%	Pass	
Manganese	M18-No08653	NCP	mg/kg	500	510	2.0	30%	Pass	
Mercury	M18-No04174	NCP	mg/kg	110	100	2.0	30%	Pass	
Nickel	M18-No08653	NCP	mg/kg	7.2	7.4	2.0	30%	Pass	
Selenium	M18-No08653	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Vanadium	M18-No08653	NCP	mg/kg	72	74	2.0	30%	Pass	
Zinc	S18-No07318	NCP	mg/kg	52	52	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M18-No07809	NCP	%	2.9	2.9	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference

Authorised By

Michael Cassidy	Analytical Services Manager
Chris Bennett	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)

Glenn Jackson

General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Appendix U – Quality Assurance / Quality Control Details

1.0 FIELD QUALITY ASSURANCE AND QUALITY CONTROL

1.1 Details of the Sampling Team

The following personnel assisted in the soil and water sampling and reporting:

- COVA Principal Environmental Scientist: Fiona Keserue-Ponte (BSc (Hons), CEnvP & CEnvP SC 41034).
- COVA Principal Environmental Scientist: Carly Clark (BSc. CEnvP & CEnvP SC 40054).

All COVA personnel are experienced in contaminated land sampling and reporting procedures.

1.2 Quality Control Samples

Quality Control (QC) samples are additional samples collected to provide an indication of the quality of the sampling program. These samples discount any errors due to possible cross-contamination, inconsistencies in sampling and checks analytical techniques used.

The following types of QC samples were collected for this investigation:

- 12 x soil triplicates (i.e. 1 primary and 2 secondary samples from the same location);
- 10 x soil duplicates (i.e. 1 primary and one secondary sample from the same location;
- 10 x trip blanks; and
- 8 x reused field equipment rinsate samples.

Duplicate / Triplicate Samples:

The duplicate and triplicate samples (split samples) were collected to fulfil QC requirements. Samples were collected either from the excavator bucket, the auger or the trowel, with sample bottles filled in succession.

- Duplicate – both samples were submitted to the primary laboratory ALS (intra-laboratory duplicate).
- Triplicate – two of the three samples were submitted to the primary laboratory ALS (intra-laboratory duplicate) and the third sample was submitted to the secondary laboratory Eurofins (inter-laboratory duplicate).

QC samples were generally analysed for the same analytical suite as the primary samples.

Trip Blank Samples:

Trip blank samples were prepared by ALS laboratory prior to the sampling event and were kept with the investigative samples throughout the sampling event. The trip blanks were packaged for shipment with the other primary samples and sent for analysis. Trip blanks generally pertain to volatile organic samples only and the trip blanks were analysed for TRH F1 fractions and BTEXN.

Rinsate Samples:

Rinsate solutions are run over the cleaned reused sampling equipment and the solution is used to fill the rinsate sample bottles. The rinsate samples were tested for the same suite of analytes as the primary samples.

1.3 Decontamination Procedures

Soil samples were generally collected using single-use nitrile gloves. Reusable sampling equipment was cleaned between each sampling location. Soils were scraped or knocked off the equipment (auger and excavator bucket) and rinsed and dried where possible. The hand trowel was triple rinsed between locations and dried with disposable paper towel. Rinse waters were disposed of directly to ground at each sample location. This procedure is not likely to result in an increase in any potential contamination.

1.4 Chain of Custody

All samples were uniquely identified on site and sample containers appropriately labelled. A COC form was completed and submitted to the relevant laboratory with each batch of samples. The COC was signed by the relevant laboratory on receipt of the samples.

The ALS and Eurofins Chain of Custody forms are attached in Appendix P.

2.0 LABORATORY QUALITY ASSURANCE AND QUALITY CONTROL

To maintain an adequate degree of sensitivity and acceptable limits of reporting (LORs), a laboratory is required to maintain a system of batch or daily run method checks.

COVA regularly uses ALS and Eurofins to analyse soil and water samples. To ensure that quality systems are being followed, and the reliability of results is maintained, NATA-accredited laboratories carry out periodical internal quality checks.

The ALS Quality Control Reports are attached in Appendix V.

The Eurofins internal QA/QC is included on the Certificate of Analysis attached in Appendix T.

A summary of the types of QA/QC checks is provided below. A summary of the Laboratories' QA/QC results and failures is provided in Table A.

2.1 Record of Holding Times

The ALS Quality Control Report provides information on holding time compliance and breaches.

The Eurofins Sample Receipt Advice provides information on holding time compliance and breaches.

2.2 Laboratory Performance in Inter-Laboratory Trials

Regular tests with duplicated and spiked samples submitted to the laboratory together with the laboratory's established and NATA approved internal QA/QC protocol ensures reliability of results.

All NATA certified laboratories undertake extensive internal QA/QC processes. This includes laboratory duplicates (randomly selected intra-laboratory split), providing information regarding method precision and sample heterogeneity and method blanks to monitor any potential laboratory contamination.

2.2.1 Laboratory Duplicates

Laboratory duplicates are randomly selected intra-laboratory splits. They provide information regarding method precision and sample heterogeneity. The permitted ranges for the relative percentage differences (RPDs) of the laboratory duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the LOR:

Results <10 times LOR – no RPD limits apply;

Results between 10 and 20 times the LOR – RPD range of 0-50%; and

Results >20 times LOR – RPD range of 0-20%.

2.2.2 Method Blank

The quality control term method blank (MB) refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of MB testing is to monitor potential laboratory contamination.

2.2.3 Matrix Spike

The quality control term matrix spike (MS) refers to an intra-laboratory split sample spiked with a representative set of target analytes. The purpose of MS testing is to monitor potential matrix effects on analyte recoveries. The MS allows the accuracy of the analytical system and any degradation or chemical alteration of the sample from the point of

collection to analysis to be traced. Static recovery limits are as per laboratory data quality objectives (DQOs). Ideal recovery ranges may be waived in the event of sample matrix interference.

2.2.4 Laboratory Control Spike

The quality control term laboratory control spike (LCS) refers to a certified reference material, or a known interference free matrix, spiked with target analytes. The purpose of LCSs is to monitor method precision and accuracy independent of sample matrix. Dynamic recovery limits are based on statistical evaluation of processed LCSs.

2.2.5 Surrogates

Surrogates are defined as 'system monitoring compounds' with the analytical method specified. These compounds are introduced from the beginning of the sample preparation in a known concentration and recoveries of the compounds are calculated to verify the performance of extraction and the instruments used. The presence of surrogates and the recovery ensures the validity of the method. Surrogates are usually distinguished from the types of compound found in the sample, and therefore can be easily identified from the other analytes. Surrogate recoveries must lie between 50-150%; phenols surrogate recoveries must lie between 20-130%, per- and polyfluoroalkyl substances (PFAS) surrogate recoveries must lie between 60-130%.

2.3 Limits of Reporting

LORs were determined by the laboratories and are stated on the laboratory Certificates of Analysis (Appendix T).

The LORs for ALS and Eurofins varied for some parameters analysed.

Table A: Summary of QCI data for Oatlands SMC Depot DSI - COVA project 4193.005					
Laboratory	Report No.	SRN (samples integrity: chill, preserved, containers, holding times, headspace)	Lab Internal QC	Comment	Interpretation
Eurofins	583301-S	all pass	all pass		
Eurofins	586154-S	all pass	2 fails	spike recovery for PAH was not within limits, Eurofins reported the fail as being due to matrix interference; duplicate TRH F3 concentrations exceeded the limit	PAHs are not a significant CoPC on Site, hence the issue with the spike is not significant; the duplicate results supports other poor repeatability results for TRH F3 fractions and statistics are used to assess this data set
Eurofins	601851-S	all pass	all pass		
Eurofins	601850-S	all pass	2 fails	spike recovery for metals was not within limits, Eurofins reported the fail as being due to matrix interference; duplicate fluoride concentrations exceeded the limit	recovery and repeatability for metals is a known issue for Site soils and statistics are used to assess CoPCs (in particular Zn) which show exceedances; fluoride concentrations are not a CoPC of concern on this site and were only assessed for waste disposal classification
Eurofins	604769-S	all pass	all pass		
Eurofins	618082-S	all pass	1 fail	spike recovery for Mn was not within limits	recovery and repeatability for metals is a known issue for Site soils; Mn is not a CoPC of significant concern on this Site, so the QC issue is not significant for the assessment
ALS	EM1907330	all pass	1 fail	spike recovery for Cd, Mn and Zn was to low or could not be determined due to matrix interference	recovery and repeatability for metals is a known issue for Site soils and statistics are used to assess CoPCs (in particular Zn) which show exceedances
ALS	EM1901520	all pass	all pass		
ALS	EM1900118	all pass	all pass		
ALS	EM1820652	all pass	2 fails	Zn duplicate RPD exceeded limits; Ba, Cr, Cu, Pb, Mn and Zn spike values could not be determined due to matrix interference	recovery and repeatability for metals is a known issue for Site soils and statistics are used to assess CoPCs (in particular Zn) which show exceedances
ALS	EM1818265	all pass	1 fail	laboratory QC frequency for PAH and phenols in water was insufficient due to small number of water samples in the batch	PAH and phenols are not CoPCs of significant concern, so the QC failure is not material to the assessment reliability
ALS	EM1817751	all pass	2 fails	laboratory QC frequency for TRH in water was insufficient due to small number of water samples in the batch; Ba recovery in a matrix spike could not be determined due to background level being greater than 4x spike level / matrix interference	TRH data have been shown to be variable and the data are assessed accordingly, hence the QC breach does not affect the way the TRH data are being assessed; Ba is not a CoPC of significant concern on Site, so the QC failure is not material to the assessment reliability
ALS	EM1814835	all pass	1 fail	spike recovery for Pb could not be determined as background level was greater than or equal to 4x spike level	recovery and repeatability for metals is a known issue for Site soils and statistics are used to assess CoPCs (in particular Zn) which show exceedances
ALS	EM1810131	all pass	all pass		
ALS	EM1808830	all pass*	1 fail	spike recovery for Mn could not be determined as background level was greater than or equal to 4x spike level	recovery and repeatability for metals is a known issue for Site soils and statistics are used to assess CoPCs (in particular Zn) which show exceedances; Mn is not a metal of significant concern on Site
ALS	EM1809075	all pass	1 fail	spike recovery for Pb, Mn and Zn could not be determined as background level was greater than or equal to 4x spike level	recovery and repeatability for metals is a known issue for Site soils and statistics are used to assess CoPCs (in particular Zn) which show exceedances; Mn is not a metal of significant concern on Site
ALS	EM1808910	all pass	1 fail	spike recovery for Mn in soil and Cu, Mn and Zn in water could not be determined as background level was greater than or equal to 4x spike level	recovery and repeatability for metals is a known issue for Site soils and statistics are used to assess CoPCs (in particular Zn) which show exceedances; Mn is not a metal of significant concern on Site.
ALS	EM1806900	all pass	all pass		

3.0 QUALITY ASSURANCE AND QUALITY CONTROL EVALUATION

3.1 Data Quality Objectives

Data Quality Objectives (DQOs) were established to document and quantify QA/QC compliance. DQOs were established for precision, accuracy, representatives, completeness and comparability.

3.2 Data Comparability Checks

Data from laboratory tests were checked against the samples, duplicates and other QA/QC test samples. The variations were measured against accepted limits allowing for minor method variations between laboratories or variations within the sample matrix submitted.

3.3 Acceptable Error

It is standard to expect up to 10% error in field duplication and up to 10% laboratory error. Therefore, in theory, up to 20% error can be assumed on duplicate analysis. Some variation may exist in soil (and water) because even though all efforts are made to split samples homogeneously, fragments of materials may bias samples in certain elements. RPDs for field duplicate samples are calculated using the method outlined below:

$$RPD = \frac{Result1 - Result2}{Mean\ Result} * 100$$

The following assessment criteria was applied:

- Where values reported by laboratory are less than 20 times the LOR, then the calculated RPD should to be less than 50%;
- Where values reported by laboratory are 20 to 100 times the LOR, then the calculated RPD should be less than 30%;
- Where values reported by laboratory are greater than 100 times the LOR, then the calculated RPD should be less than 15%; and
- No RPD limit applies where values reported by laboratory are less than two times the LOR.

Essentially, the closer the result to the LOR, the greater the amount of variance (expressed as the RPD) is accepted.

It is accepted that uncertainties and variations in the data may arise due to the potential heterogeneous nature of soil (and water). Uncertainties in the data may also arise from inconsistency of contamination dispersion within the profile, as deposition will not occur in a uniform manner across an entire site.

Sampling was undertaken in accordance with COVA procedures and relevant guidelines. There is no acceptable error for incorrect field sampling and for not following procedures.

3.4 Field Quality Assurance and Quality Control Results

A review of the field QA/QC results has been undertaken, results are attached and discussed below.

The ALS and Eurofins Certificates of Analysis are attached in Appendix T.

3.4.1 Duplicates and Triplicates

RPD exceedances include:

- Poor repeatability between triplicate samples, i.e. interlab duplicates between ALS and Eurofins is patchy for TRH and metals concentrations above LORs;
- Poor repeatability between duplicate samples, i.e. blind intralab duplicates within ALS, are also patchy for TRH and metals concentrations above LORs.

The results suggest that TRH and metals non-detects are accurate as repeatability is good where results are below LORs; whereas detectable TRH and metals concentrations are less reliable and vary due to soil heterogeneity and possibly laboratory method variability, as demonstrated by their own internal duplicate RPD exceedances. This means that statistical analyses of large data sets where occasional exceedances are reported, are a valid approach to even out patchy soil results. Average values have been calculated and used to assess overall data sets for TRH F2 and F3, and Zn concentrations where applicable.

3.4.2 Rinsate

The following detections were reported in field equipment rinsate samples:

- Detection of heavy metals on rinsates taken from the digger / excavator bucket on several occasions (31/1/2018, 1/2/2018, and to a lesser extent 1/11/2018); and
- Detection of TRH F3 fractions on the excavator bucket rinsate on 2/2/2018.

These rinsate results suggest that despite cleaning the excavator bucket between test pits, there may have been a small amount of cross-contamination between test pits. Test pit soil samples were taken from fresh faces and undisturbed soil from each test pit and the effect of possible cross-contamination from the excavator bucket is expected to be undetectable compared to the amount of undisturbed material placed in each jar.

3.4.3 Trip Blanks

Concentrations of BTEXN and TRH (F1 fractions) in all trip blank samples were below the LORs. The results indicate that cross-contamination with volatile contaminants during transport is unlikely and the results confirm the acceptability of field sampling and transport protocols.

3.5 Evaluation of all Quality Assurance and Quality Control Information

A review of all the results and the associated QA/QC processes has been undertaken. Notable QA/QC deviations are outlined above for duplicate/triplicate RPDs and rinsates. Nonetheless, on the basis of the overall QA/QC information documented in related appendices and after assessment of any deviations from the accepted QA/QC limits, the results are considered to be generally representative of the concentrations of contaminants in the soil and surface water at the specified depths at the time of sampling. It is recommended that soil data results be assessed statistically rather than as individual local values, since repeatability of TRH and metals concentrations is poor.

SUMMARY RESULTS - DUPLICATES & TRIPLICATES (SOIL)

4193.005 - Oatlands DSI	Analyte Group	TRH					BTEXN					PAH			Phenols		Heavy Metals																								Organochlorine Pesticides											Herbicides			Cyanide	Fluoride	PCB
	Analyte	(C6-C10 minus BTEX (F1)	>C10-C16 minus Naphthalene (F2)	>C16-C34 (F3)	>C34-C40 (F4)	Sum (>C10-C40)	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Naphthalene	Benzo(a)pyrene	Carcinogenic PAHs (as BaP TEQ)	Total PAHs	Pentachlorophenol	Phenol	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Hexavalent Chromium	Cobalt	Copper	Lead	Manganese	Molybdenum	Nickel	Selenium	Silver	Tin	Vanadium	Zinc	Mercury	DDT + DDE + DDD	Aldrin + Dieldrin	Chlordane (sum)	Endosulfan (sum)	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	Mirex	Toxaphene	2,4,5-T	2,4-D	MCPA	Total Cyanide	Fluoride	Total Polychlorinated Biphenyls
	ALS LOR	10	10	50	100	100	0.2	0.5	0.5	0.5	1	0.5	0.5	0.5	2	0.5	5	10	1	50	1	2	0.5	2	5	5	5	2	2	5	2	5	5	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.05	0.05	0.02	0.02	0.02	1	40	0.1
Sample ID	Date sampled	Laboratory	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP1-01	31/01/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	--	--	<5	**40**	<1	<50	<1	**6**	--	**8**	**38**	**7**	**322**	--	**14**	<5	--	--	**23**	**30**	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Triplicate 1	31/01/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	--	--	<5	**40**	<1	<50	<1	**5**	--	**7**	**31**	**6**	**313**	--	**11**	<5	--	--	**24**	**19**	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RPD		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	0	nd	nd	nd	18	nd	13	20	15	3	nd	24	nd	nd	nd	4	45	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP1-01	31/01/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	--	--	<5	**40**	<1	<50	<1	**6**	--	**8**	**38**	**7**	**322**	--	**14**	<5	--	--	**23**	**30**	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Triplicate 2	31/01/2018	Eurofins		<20	<50	<100	<100	--	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	**1.2**	<0.5	--	--	<2	**26**	<2	<10	<0.4	**11**	--	**14**	**62**	<5	**380**	--	**22**	--	--	--	**55**	**27**	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RPD		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	**42**	nd	nd	nd	**59**	nd	**55**	**48**	nd	**17**	nd	**44**	nd	nd	nd	**82**	**11**	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP7-02	31/01/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	--	--	<5	**60**	<1	<50	<1	**4**	--	**5**	**22**	**24**	**209**	--	**6**	<5	--	--	**14**	**37**	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Duplicate 1	31/01/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	--	--	<5	**70**	<1	<50	<1	**5**	--	**3**	**14**	**41**	**143**	--	**5**	<5	--	--	**23**	**87**	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RPD		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	**15**	nd	nd	nd	**22**	nd	**50**	**44**	**52**	**38**	nd	**18**	nd	nd	nd	**49**	**81**	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP12-03	31/01/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	--	--	<5	**160**	**4**	<50	<1	**12**	--	**14**	**6**	**14**	**1140**	--	**6**	<5	--	--	**64**	**8**	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	--	--	<0.02	<0.02	<0.02	--	--	--
Duplicate 2	31/01/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	--	--	<5	**20**	**1**	<50	<1	**11**	--	**9**	**6**	**9**	**39**	--	**10**	<5	--	--	**30**	**18**	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	**156**	**120**	nd	nd	**9**	nd	**43**	**0**	**43**	**187**	nd	**50**	nd	nd	nd	**72**	**77**	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
T1-02	20/02/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5	--	--	--	--	--	--	--	--	--	**42**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Triplicate 1	20/02/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5	--	--	--	--	--	--	--	--	--	**35**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RPD		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	**18**	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
T1-02	20/02/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5	--	--	--	--	--	--	--	--	--	**42**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Triplicate 2	20/02/2018	Eurofins		<20	<50	<100	<100	--	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	**1.2**	<0.5	<1	<0.5	--	--	--	--	--	--	--	--	--	**45**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RPD		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	**7**	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DT2	20/02/2018	ALS		<10	**1560**	**2340**	<100	**3900**	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5	--	--	--	--	--	--	--	--	--	**94**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Duplicate 1	20/02/2018	ALS		<10	**1320**	**2020**	<100	**3340**	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5	--	--	--	--	--	--	--	--	--	**93**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RPD		nd	**17**	**15**	nd	**15**	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	**1**	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
A3-1	20/02/2018	ALS		<10	**140**	**640**	**210**	**990**	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5	--	--	--	--	--	--	--	--	--	**118**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Duplicate 2	20/02/2018	ALS		<10	<50	**500**	**200**	**700**	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5	--	--	--	--	--	--	--	--	--	**320**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RPD		nd	nd	**25**	**5**	**34**	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	**92**	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
B20	20/02/2018	ALS		<10	**1430**	**1710**	<100	**3140**	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5	--	--	--	--	--	--	--	--	--	**64**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Triplicate 3	20/02/2018	ALS		<10	**1330**	**1620**	<100	**2950**	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	**0.5**	<2	<0.5	--	--	--	--	--	--	--	--	--	**35**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RPD		nd	**7**	**5**	nd	**6**	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	**59**	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
B20	20/02/2018	ALS		<10	**1430**	**1710**	<100	**3140**	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5	--	--	--	--	--	--	--	--	--	**64**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Triplicate 4	20/02/2018	Eurofins		<20	**1000**	**1000**	<100	--	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	**1.2**	<0.5	<1	<0.5	--	--	--	--	--	--	--	--	--	**60**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		nd	**35**	**52**	nd	nd	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	**6**	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
T2-Base	2/02/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	--	--	<5	**30**	<1	<50	<1	**5**	--	**6**	**7**	**8**	**167**	--	**4**	<5	--	--	**36**	**12**	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Triplicate 7	2/02/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	--	--	<5	**30**	<1	<50	<1	**5**	--	**6**	**7**	**7**	**144**	--	**4**	<5	--	--	**36**	**11**	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RPD		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	0	nd	nd	nd	0	nd	0	0	13	15	nd	0	nd	nd	nd	0	9	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
T2-Base	2/02/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	--	--	<5	**30**	<1	<50	<1	**5**	--	**6**	**7**	**8**	**167**	--	**4**	<5	--	--	**36**	**12**	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Triplicate 8	2/02/2018	Eurofins		<20	<50	<100	<100	--	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	**1.2**	<0.5	--	--	<2	**41**	<2	<10	<0.4	**7**	--	**11**	**10**	**15**	**250**	--	**5**	<2	--	--	**47**	**16**	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RPD		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	**31**	nd	nd	nd	**36**	nd	**59**	**35**	**61**	**40**	nd	**26**	nd	nd	nd	**27**	**29**	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Backfill sand	2/02/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Duplicate 1	2/02/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RPD		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
T4-04	1/02/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5	<5	**30**	<1	<50	<1	**4**	--	**3**	<5	**11**	**72**	--	**4**	<5	--	--	**8**	**35**	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	--	--	<0.02	<0.02	<0.02	--	--	--
Triplicate 5	1/02/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	**0.5**	<2	<0.5	<5	**50**	<1	<50	<1	**4**	--	**4**	**9**	**11**	**104**	--	**6**	<5	--	--	**12**	**33**	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	--	--	<0.02	<0.02	<0.02	--	--	--
RPD		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	**50**	nd	nd	nd	**0**	nd	**29**	nd	**0**	**36**	nd	**40**	nd	nd	nd	**40**	**6**	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
T4-04	1/02/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5	<5	**30**	<1	<50	<1	**4**	--	**3**	<5	**11**	**72**	--	**4**	<5	--	--	**8**	**35**	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	--	--	<0.02	<0.02	<0.02	--	--	--
Triplicate 6	1/02/2018	Eurofins		<20	<50	<100	<100	--	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	**1.2**	<0.5	<1	<0.5	<2	**33**	<2	<10	<0.4	<5	--	<5	**13**	**12**	**95**	--	**7**	--	--	--	**15**	**28**	<0.1	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	--	--	<0.5	<0.5	<0.5	--	--	--
RPD		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	**10**	nd	nd	nd	nd	nd	nd	nd	**9**	**28**	nd	**48**	nd	nd	nd	**61**	**22**	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
T5-03	1/02/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	<2	<0.5	<5	**20**	<1	<50	<1	**6**	--	**5**	<5	<5	**152**	--	**6**	<5	--	--	**14**	**11**	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Duplicate 3	1/02/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	**0.5**	<2	<0.5	<5	**20**	<1	<50	<1	**6**	--	**4**	<5	<5	**58**	--	**5**	<5	--	--	**12**	**10**	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RPD		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	**0**	nd	nd	nd	**0**	nd	**22**	nd	nd	**90**	nd	**18**	nd	nd	nd	**15**	**10**	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
T13-01	1/02/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	--	--	<5	**60**	<1	<50	<1	**10**	--	**8**	<5	**14**	**77**	--	**8**	<5	--	--	**17**	**40**	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Triplicate 3	1/02/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	**0.5**	--	--	<5	**30**	<1	<50	<1	**6**	--	**5**	<5	**10**	**72**	--	**5**	<5	--	--	**11**	**39**	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RPD		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	**67**	nd	nd	nd	**50**	nd	**46**	nd	**33**	**7**	nd	**46**	nd	nd	nd	**43**	**3**	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
T13-01	1/02/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	--	--	<5	**60**	<1	<50	<1	**10**	--	**8**	<5	**14**	**77**	--	**8**	<5	--	--	**17**	**40**	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Triplicate 4	1/02/2018	Eurofins		<20	<50	<100	<100	--	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	**1.2**	<0.5	--	--	<2	**55**	<2	<10	<0.4	**11**	--	**7**	**6**	**22**	**85**	--	**7**	--	--	--	**18**	**53**	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RPD		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	**9**	nd	nd	nd	**10**	nd	**13**	nd	**44**	**10**	nd	**12**	nd	nd	nd	**6**	**28**	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP1-01	6/02/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	--	--	<5	**40**	<1	<50	<1	**6**	--	**8**	**38**	**7**	**322**	--	**14**	<5	--	--	**23**	**30**	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Triplicate 1	6/02/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	<0.5	**1.2**	<0.5	--	--	<5	**40**	<1	<50	<1	**5**	--	**7**	**31**	**6**	**313**	--	**11**	<5	--	--	**24**	**19**	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RPD		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	**0**	nd	nd	nd	**18**	nd	**13**	**20**	**15**	**3**	nd	**24**	nd	nd	nd	**4**	**45**	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV6	28/05/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
V Trip 1	28/05/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RPD		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SV6	28/05/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
V Trip 2	28/05/2018	Eurofins		<20	<50	<100	<100	--	<0.1	<0.1	<0.1	<0.3	<0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RPD		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
T10V-05	30/05/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trip 1 30.5	30/05/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RPD		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
T10V-05	30/05/2018	ALS		<10	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trip 2 30.5	30/05/2018	Eurofins		<20	<50	<100	<100	--	<0.1	<0.1	<0.1	<0.3	<0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RPD		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
D1	1/06/2018	ALS		<10	<50	**110**	<100	**110**	<0.2	<0.5	<0.5	<0.5	<1	**0.08**	**1.2**	<0.5	<2	<0.5	<5	**80**	<1	--	<1	**14**	<0.5	**8**	**21**	**82**	**263**	<2	**10**	<5	<2	**5**	--	**114**	**0.4**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	--	--	--	--	--	<1	**60**	<0.1
Triplet 1	1/06/2018	ALS		<10	<50	**170**	<100	**170**	<0.1	<0.1	<0.1	<0.3	<0.5	<0.05	**1.2**	<0.5	<2	<0.5	<5	**170**	<1	--	<1	**14**	<0.5	**9**	**23**	**186**	**370**	<2	**10**	<5	<2	**6**	--	**175**	**0.9**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	--	--	--	--	--	<1	**40**	<0.1
RPD		nd	nd	**43**	nd	**43**	nd	nd	nd	nd	nd	nd	0	nd	nd	nd	nd	**72**	nd	nd	nd	**0**	nd	**12**	**9**	**78**	**34**	nd	**0**	nd	nd	nd	**18**	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	**1**	nd
D1	1/06/2018	ALS		<10	<50	**110**	<100	**110**	<0.2	<0.5	<0.5	<0.5	<1	**0.08**	**1.2**	<0.5	<2	<0.5	<5	**80**

SUMMARY RESULTS - RINSATES & TRIP BLANKS (WATER)

4193.005 - Oatlands DSI			Analyte Grouping	TRH					BTEXN					PAH			Phenols		Heavy Metals														
			Analyte	C6-C10 minus BTEX (F1)	>C10-C16 minus Naphthalene (F2)	>C16-C34 (F3)	>C34-C40 (F4)	Sum (>C10-C40)	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naphthalene	Benzo(a)pyrene	Carcinogenic PAHs (as BaP TEQ)	Total PAHs	Pentachlorophenol	Phenol	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Vanadium	Zinc	Mercury
			ALS LORs	20	100	100	100	100	1	2	2	2	5	0.5	0.5	0.5	2	1	0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.01	0.01	0.005	0.0001
Sample ID	**Date sampled**	**Laboratory**	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Rinsate-digger	31/01/2018	ALS		<20	<100	<100	<100	<100	<1	<2	<2	<2	<5	--	--	--	--	--	**0.002**	**0.069**	<0.001	<0.05	<0.0001	**0.17**	**0.011**	**0.04**	**0.019**	**0.457**	**0.027**	<0.01	**0.02**	**0.058**	<0.0001
QA/QC Assessment				pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	--	--	--	--	--	detect	detect	pass	pass	pass	detect	detect	detect	detect	detect	detect	pass	detect	detect	pass
TB1	31/01/2018	ALS		<20	--	--	--	--	<1	<2	<2	<2	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
QA/QC Assessment				pass	--	--	--	--	pass	pass	pass	pass	pass	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	20/02/2018	ALS		<20	--	--	--	--	<1	<2	<2	<2	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
QA/QC Assessment				pass	--	--	--	--	pass	pass	pass	pass	pass	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rinsate-excavator bucket	2/02/2018	ALS		<20	<100	**250**	<100	**250**	<1	<2	<2	<2	<5	<0.5	<0.5	<0.5	<2.0	<1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
QA/QC Assessment				pass	pass	detect	pass	detect	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	2/02/2018	ALS		<20	--	--	--	--	<1	<2	<2	<2	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
QA/QC Assessment				pass	--	--	--	--	pass	pass	pass	pass	pass	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rinsate-trowel	2/02/2018	ALS		<20	<100	<100	<100	<100	<1	<2	<2	<2	<5	<0.5	<0.5	<0.5	<2.0	<1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
QA/QC Assessment				pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rinsate-excavator	1/02/2018	ALS		<20	<100	<100	<100	<100	<1	<2	<2	<2	<5	--	--	--	--	--	<0.001	**0.027**	<0.001	<0.05	**0.0002**	**0.007**	**0.001**	**0.005**	**0.017**	**0.056**	**0.002**	<0.01	<0.01	**0.029**	<0.0001
QA/QC Assessment				pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	--	--	--	--	--	pass	detect	pass	pass	detect	detect	detect	detect	detect	detect	detect	pass	pass	detect	pass
Rinsate-auger	1/02/2018	ALS		<20	<100	<100	<100	<100	<1	<2	<2	<2	<5	--	--	--	--	--	<0.001	<0.001	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.01	<0.005	<0.0001
QA/QC Assessment				pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	--	--	--	--	--	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass
TB2	1/02/2018	ALS		<20	--	--	--	--	<1	<2	<2	<2	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
QA/QC Assessment				pass	--	--	--	--	pass	pass	pass	pass	pass	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	28/05/2018	ALS		<20	--	--	--	--	<1	<2	<2	<2	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
QA/QC Assessment				pass	--	--	--	--	pass	pass	pass	pass	pass	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rinsate-trowel	28/05/2018	ALS		<20	<100	<100	<100	<100	<1	<2	<2	<2	<5	--	--	--	--	--	<0.001	<0.001	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.01	<0.005	<0.0001
QA/QC Assessment				pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	--	--	--	--	--	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass
Trip Blank	30/05/2018	ALS		<20	--	--	--	--	<1	<2	<2	<2	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
QA/QC Assessment				pass	--	--	--	--	pass	pass	pass	pass	pass	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	21/06/2018	ALS		<20	--	--	--	--	<1	<2	<2	<2	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
QA/QC Assessment				pass	--	--	--	--	pass	pass	pass	pass	pass	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Field Blank (QA1)	12/07/2018	ALS	W.C.Cromer MW1 GME	<20	<100	<100	<100	<100	<1	<2	<2	<2	<5	--	--	--	--	--	<0.001	--	--	--	<0.0001	<0.001	--	<0.001	<0.001	--	<0.001	--	--	<0.005	<0.0001
QA/QC Assessment				pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	--	--	--	--	--	pass	--	--	--	pass	pass	--	pass	pass	--	pass	--	--	pass	pass
Trip Blank (QA4)	12/07/2018	ALS	W.C.Cromer MW1 GME	<20	--	--	--	--	<1	<2	<2	<2	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
QA/QC Assessment				pass	--	--	--	--	pass	pass	pass	pass	pass	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	12/09/2018	ALS		<20	--	--	--	--	<1	<2	<2	<2	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
QA/QC Assessment				pass	--	--	--	--	pass	pass	pass	pass	pass	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	1/11/2018	ALS		<20	--	--	--	--	<1	<2	<2	<2	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
QA/QC Assessment				pass	--	--	--	--	pass	pass	pass	pass	pass	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rinsate-bucket	1/11/2018	ALS		<20	<100	<100	<100	<100	<1	<2	<2	<2	<5	--	--	--	--	--	<0.001	<0.001	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.001	**0.002**	<0.001	<0.01	<0.01	<0.005	<0.0001
QA/QC Assessment				pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	--	--	--	--	--	pass	pass	pass	pass	pass	pass	pass	pass	pass	detect	pass	pass	pass	pass	pass
Rinsate (trowel)	14/05/2019	ALS		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.01	<0.005	<0.0001
QA/QC Assessment				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass

Legend:

LOR	Laboratory Limit of Reporting
TB	Trip Blank
--	Not tested
bold	value is > LOR
	passes
	detected

SUMMARY RESULTS - TRIP BLANK (SOIL)

4193.005 - Oatlands DSI			Analyte Grouping	TRH					BTEXN				
			Analyte	C6-C10 minus BTEX (F1)	>C10-C16 minus Naphthalene (F2)	>C16-C34 (F3)	>C34-C40 (F4)	Sum (>C10-C40)	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naphthalene
			ALS LORs	10	50	100	100	50	0.2	0.5	0.5	0.5	1
Sample ID	**Date sampled**	**Laboratory**	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Trip Blank	1/06/2018	ALS		<10	--	--	--	--	<0.2	<0.5	<0.5	<0.5	<1
QA/QC Assessment				pass	--	--	--	--	pass	pass	pass	pass	pass

Legend:

LOR	Laboratory Limit of Reporting
TB	Trip Blank
--	Not tested
bold	value is > LOR
	passes
	detected

Appendix V – Laboratory Quality Control Reports

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1802453**	Page	: 1 of 27
Client	: **SEMF PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Outlands DSI	Date Samples Received	: 02-Feb-2018
Order number	: 4193.005	Date Analysis Commenced	: 05-Feb-2018
C-O-C number	: ----	Issue Date	: 20-Feb-2018
Sampler	: FIONA KESERUE-PONTE		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 47		
No. of samples analysed	: 40		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Franco Lentini		Sydney Organics, Smithfield, NSW
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nathan Webb	Asbestos Identifier	Newcastle - Inorganics, Mayfield West, NSW
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 1413555)									
EM1802397-001	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	8.4	8.3	1.20	0% - 20%
EM1802400-001	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	4.1	4.1	0.00	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1417148)									
EM1802423-045	Anonymous	EA055: Moisture Content	----	1	%	40.6	37.8	7.17	0% - 20%
EM1802430-009	Anonymous	EA055: Moisture Content	----	1	%	1.1	1.3	15.7	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1417149)									
EM1802453-011	TP2-02	EA055: Moisture Content	----	1	%	17.7	15.4	13.5	0% - 50%
EM1802453-020	TP7-01	EA055: Moisture Content	----	1	%	15.1	14.3	5.12	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1417150)									
EM1802453-030	TP13-02	EA055: Moisture Content	----	1	%	11.9	12.2	1.76	0% - 50%
EM1802453-040	TP15-02	EA055: Moisture Content	----	1	%	4.0	3.8	3.64	No Limit
ED006: Exchangeable Cations on Alkaline Soils (QC Lot: 1422937)									
EM1802442-006	Anonymous	ED006: Exchangeable Calcium	----	0.2	meq/100g	1.7	1.6	0.00	No Limit
		ED006: Exchangeable Magnesium	----	0.2	meq/100g	<0.2	<0.2	0.00	No Limit
		ED006: Exchangeable Potassium	----	0.2	meq/100g	<0.2	<0.2	0.00	No Limit
		ED006: Exchangeable Sodium	----	0.2	meq/100g	<0.2	<0.2	0.00	No Limit
		ED006: Cation Exchange Capacity	----	0.2	meq/100g	1.7	1.6	0.00	No Limit
ED007: Exchangeable Cations (QC Lot: 1414586)									
EM1802442-019	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.7	0.8	13.9	No Limit
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	2.3	2.6	10.8	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	0.1	0.00	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	1.0	1.0	0.00	0% - 50%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	4.1	4.6	10.9	0% - 20%
EM1802442-066	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	1.8	1.6	7.71	0% - 50%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
ED007: Exchangeable Cations (QC Lot: 1414586) - continued									
EM1802442-066	Anonymous	ED007: Exchangeable Magnesium	----	0.1	meq/100g	1.4	1.3	0.00	0% - 50%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.00	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.1	0.1	0.00	No Limit
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	3.5	3.3	6.47	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 1414951)									
EM1802453-004	duplicate 2	EG005T: Beryllium	7440-41-7	1	mg/kg	1	1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	30	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	12	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	9	8	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	10	9	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	6	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	9	9	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	39	37	5.48	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	30	28	9.08	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	18	17	6.45	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	26800	26200	2.26	0% - 20%
EM1802453-021	TP7-02	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	60	60	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	4	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	5	4	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	5	22.8	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	22	14	44.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	24	30	22.5	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	209	200	4.64	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	14	11	20.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	37	46	23.6	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	7590	6310	18.4	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 1414952)									
EM1802453-039	TP15-01	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	240	240	0.00	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	12	13	14.2	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005T: Total Metals by ICP-AES (QC Lot: 1414952) - continued									
EM1802453-039	TP15-01	EG005T: Cobalt	7440-48-4	2	mg/kg	6	5	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	12	8	46.6	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	31	<5	145	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	55	46	18.2	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	158	158	0.00	0% - 20%
		EG005T: Manganese	7439-96-5	5	mg/kg	484	445	8.48	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	19	14	30.7	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	244	233	4.34	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EM1802453-033	TP12-01	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	9	11.9	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	11	10	10.6	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	17	16	7.64	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	63	54	14.9	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	278	249	10.8	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	39	33	15.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	30	25	18.1	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	20800	18100	13.8	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 1417429)									
EM1802453-041	triplicate 1	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	40	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	5	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	7	7	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	11	11	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	31	31	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	6	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	313	314	0.00	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	24	24	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	19	19	0.00	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 1417429) - continued									
EM1802453-041	triplicate 1	EG005T: Iron	7439-89-6	50	mg/kg	16000	16000	0.188	0% - 20%
EM1802580-006	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	1	1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	50	51	0.00	0% - 20%
		EG005T: Cobalt	7440-48-4	2	mg/kg	12	12	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	36	37	0.00	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	16	17	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	9	9	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	264	266	0.746	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	52	54	0.00	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	12	12	0.00	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	30600	31000	1.32	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1414950)									
EM1802453-004	duplicate 2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1802453-021	TP7-02	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1414953)									
EM1802453-033	TP12-01	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1417430)									
EM1802453-041	triplicate 1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1802580-006	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP004: Organic Matter (QC Lot: 1414275)									
EM1802361-001	Anonymous	EP004: Organic Matter	----	0.5	%	70.0	75.3	7.20	0% - 20%
		EP004: Total Organic Carbon	----	0.5	%	40.6	43.6	7.19	0% - 20%
EM1802442-058	Anonymous	EP004: Organic Matter	----	0.5	%	<0.5	<0.5	0.00	No Limit
		EP004: Total Organic Carbon	----	0.5	%	<0.5	<0.5	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1411669)									
EM1802453-035	TP12-03	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1411669) - continued									
EM1802453-035	TP12-03	EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1411669)									
EM1802453-035	TP12-03	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QC Lot: 1411665)									
EM1802453-009	TP1-02	EP071SG-S: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QC Lot: 1411668)									
EM1802453-026	TP9-02	EP071SG-S: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QC Lot: 1417678)									
EM1802453-046	TP6-02	EP071SG-S: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QC Lot: 1411665)									
EM1802453-009	TP1-02	EP071SG-S: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QC Lot: 1411668)									
EM1802453-026	TP9-02	EP071SG-S: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QC Lot: 1417678)									
EM1802453-046	TP6-02	EP071SG-S: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1411663)									
EM1802453-003	triplicate 1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1802453-020	TP7-01	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1411663) - continued									
EM1802453-020	TP7-01	EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1411667)									
EM1802453-025	TP9-01	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1802453-035	TP12-03	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1411667) - continued									
EM1802453-035	TP12-03	EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1417676)									
EM1802453-041	triplicate 1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1411490)									
EM1802453-003	triplicate 1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1802453-016	TP5-01	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1411501)									
EM1802453-026	TP9-02	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1802453-036	TP16-01	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1411664)									
EM1802453-003	triplicate 1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1802453-020	TP7-01	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1411666)									
EM1802453-025	TP9-01	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1416873)									
EM1802453-041	triplicate 1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1802580-010	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1417677)									
EM1802453-041	triplicate 1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1411490)									
EM1802453-003	triplicate 1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1802453-016	TP5-01	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1411501)									
EM1802453-026	TP9-02	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1802453-036	TP16-01	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1411664)									
EM1802453-003	triplicate 1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1802453-020	TP7-01	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1411666)									
EM1802453-025	TP9-01	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1416873)									
EM1802453-041	triplicate 1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1802580-010	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1417677)									
EM1802453-041	triplicate 1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1417677) - continued									
EM1802453-041	triplicate 1	EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 1411490)									
EM1802453-003	triplicate 1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1802453-016	TP5-01	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP080: BTEXN (QC Lot: 1411501)									
EM1802453-026	TP9-02	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1802453-036	TP16-01	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP080: BTEXN (QC Lot: 1416873)									
EM1802453-041	triplicate 1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 1416873) - continued									
EM1802580-010	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 1419404)									
EM1802453-035	TP12-03	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
ES1803908-005	Anonymous	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 1413408)									
EM1802422-003	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0002	<0.0001	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 1413408) - continued									
EM1802422-003	Anonymous	EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.007	0.007	0.00	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.044	0.043	3.49	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.018	0.018	0.00	0% - 50%
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.005	0.005	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.012	0.012	0.00	0% - 50%
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.034	0.031	8.26	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.006	22.2	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	0.02	0.02	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	0.02	0.02	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	3.67	3.63	1.22	0% - 20%
EM1802359-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.008	0.009	14.9	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.002	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.017	0.018	0.00	0% - 50%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.066	0.067	2.10	0% - 50%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1417107)									
EM1802213-034	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1802495-021	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1412985)									
EM1802362-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1802367-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1412985)									
EM1802362-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1802367-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1412985)									
EM1802362-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 1412985) - continued									
EM1802362-001	Anonymous	EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1802367-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED006: Exchangeable Cations on Alkaline Soils (QCLot: 1422937)								
ED006: Exchangeable Calcium	----	0.2	meq/100g	<0.2	33 meq/100g	89.2	80	120
ED006: Exchangeable Magnesium	----	0.2	meq/100g	<0.2	32 meq/100g	102	80	120
ED006: Exchangeable Potassium	----	0.2	meq/100g	<0.2	2.2 meq/100g	108	80	120
ED006: Exchangeable Sodium	----	0.2	meq/100g	<0.2	5.6 meq/100g	98.3	80	120
ED006: Cation Exchange Capacity	----	0.2	meq/100g	<0.2	----	----	----	----
ED007: Exchangeable Cations (QCLot: 1414586)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	21.6 meq/100g	97.6	80	120
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	10.5 meq/100g	95.0	80	120
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	1.7 meq/100g	95.4	80	120
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	1.33 meq/100g	99.6	80	120
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----
EG005T: Total Metals by ICP-AES (QCLot: 1414951)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	86.8	79	113
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	86.4	79	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	91.9	85	120
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	100.0	82	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	86.4	85	109
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	85.3	83	109
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	82.2	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	87.2	78	108
EG005T: Iron	7439-89-6	50	mg/kg	<50	8400 mg/kg	103	90	110
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	78.4	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	92.5	82	107
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	86.5	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	101	93	109
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	82.1	80	109
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	85.6	82	111
EG005T: Total Metals by ICP-AES (QCLot: 1414952)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	86.6	79	113
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	87.2	79	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	91.7	85	120
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	101	82	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	85.8	85	109
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	85.2	83	109

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1414952) - continued								
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	82.1	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	87.5	78	108
EG005T: Iron	7439-89-6	50	mg/kg	<50	----	----	----	----
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	78.6	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	92.4	82	107
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	86.2	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	101	93	109
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	82.3	80	109
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	84.6	82	111
EG005T: Total Metals by ICP-AES (QCLot: 1417429)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	83.4	79	113
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	79.8	79	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	86.8	85	120
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	93.5	82	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	88.1	85	109
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	87.6	83	109
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	89.0	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	85.3	78	108
EG005T: Iron	7439-89-6	50	mg/kg	<50	8400 mg/kg	99.3	90	110
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	88.6	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	84.6	82	107
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	82.3	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	99.9	93	109
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	92.3	80	109
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	82.4	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1414950)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	89.3	77	104
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1414953)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	88.2	77	104
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1417430)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	94.1	77	104
EP004: Organic Matter (QCLot: 1414275)								
EP004: Organic Matter	----	0.5	%	<0.5	77 %	90.3	81	112
EP004: Total Organic Carbon	----	0.5	%	<0.5	43.5 %	92.7	83	114
EP068A: Organochlorine Pesticides (OC) (QCLot: 1411669)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	108	65	120
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	105	68	121
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	108	70	121

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 1411669) - continued								
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	112	64	119
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	113	56	121
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	81.4	63	114
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	109	64	121
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	106	68	120
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	72	124
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.5	69	125
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	107	71	123
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	107	59	123
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	114	70	123
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.7	64	119
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	100	69	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.3	66	128
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	88.7	62	121
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	57	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	75.0	60	124
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	97.9	73	120
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	63.6	61	121
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1411669)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	118	63	127
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	97.2	53	137
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	100	10	136
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.9	56	127
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	108	70	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	108	70	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	86.2	50	132
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	90.1	63	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	110	70	122
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	106	58	123
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	78.5	56	119
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	99.8	68	119
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	107	45	122
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	100	67	116
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	79.3	50	127
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	111	68	121
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	96.4	60	123
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	68	122
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	61.0	24	113
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 1411665)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 1411665) - continued								
EP071SG-S: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	99.3	39	119
EP071SG-S: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	113	60	115
EP071SG-S: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	107	57	127
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 1411668)								
EP071SG-S: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	89.1	39	119
EP071SG-S: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	93.8	60	115
EP071SG-S: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	89.8	57	127
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 1417678)								
EP071SG-S: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	93.1	39	119
EP071SG-S: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	108	60	115
EP071SG-S: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	101	57	127
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 1411665)								
EP071SG-S: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	103	48	119
EP071SG-S: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	109	51	124
EP071SG-S: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	88.9	39	150
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 1411668)								
EP071SG-S: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	91.2	48	119
EP071SG-S: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	93.1	51	124
EP071SG-S: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	81.6	39	150
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 1417678)								
EP071SG-S: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	95.5	48	119
EP071SG-S: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	103	51	124
EP071SG-S: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	93.6	39	150
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1411663)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	119	75	131
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	119	70	132
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	93.9	80	128
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	111	70	128
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	105	80	128
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.5 mg/kg	112	72	126
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	114	70	128
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	115	80	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	102	70	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	104	80	126
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	111	71	124
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	114	75	125
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	105	70	125

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1411663) - continued								
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	110	71	128
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	110	72	126
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	110	68	127
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1411667)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	112	75	131
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	112	70	132
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	105	80	128
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	94.6	70	128
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	110	80	128
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	3 mg/kg	77.8	72	126
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	104	70	128
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	103	80	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	90.7	70	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	110	80	126
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	96.1	71	124
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	106	75	125
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	96.4	70	125
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	96.3	71	128
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	107	72	126
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	102	68	127
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1417676)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	113	75	131
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	108	70	132
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	113	80	128
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	113	70	128
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	116	80	128
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.8 mg/kg	118	72	126
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	117	70	128
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	119	80	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	110	70	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	114	80	126
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	99.9	71	124
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	112	75	125
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	95.0	70	125
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	92.9	71	128
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	89.4	72	126
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	94.4	68	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1411490)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	123	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1411501)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	95.7	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1411664)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	108	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	114	84	115
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	110	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1411666)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	104	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	111	84	115
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	111	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1416873)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	83.4	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1417677)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	103	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	110	84	115
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	110	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1411490)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	121	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1411501)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	92.5	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1411664)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	113	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	113	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	115	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1411666)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	108	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	110	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	115	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1416873)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	80.5	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1417677)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1417677) - continued								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	107	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	110	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	115	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN (QCLot: 1411490)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	114	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	115	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	118	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	120	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	119	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	92.6	66	130
EP080: BTEXN (QCLot: 1411501)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	86.9	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	94.7	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	94.0	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	103	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	103	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	96.5	66	130
EP080: BTEXN (QCLot: 1416873)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	85.4	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	90.6	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	91.0	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	85.9	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	87.3	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	101	66	130
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 1419404)								
EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	0.1 mg/kg	57.0	54	128
EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	0.1 mg/kg	61.6	46	130
EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	0.1 mg/kg	61.9	52	135
EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	0.1 mg/kg	67.6	60	130
EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	0.1 mg/kg	58.7	57	131
EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	0.1 mg/kg	63.6	50	141
EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	0.1 mg/kg	74.9	69	131
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	0.1 mg/kg	66.7	51	141
EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	0.1 mg/kg	56.9	41	126

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 1419404) - continued								
EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	0.1 mg/kg	74.5	57	139
EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	0.1 mg/kg	58.0	39	137
EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	0.1 mg/kg	71.9	49	129
EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	0.1 mg/kg	86.1	49	106
EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	0.1 mg/kg	62.9	53	128

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1413408)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	90	110
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	101	88	113
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	104	88	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	107	86	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.9	87	109
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	102	88	113
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.1	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	101	88	109
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	103	88	111
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	99.1	85	113
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	101	88	112
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	87	113
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	111	88	118
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1417107)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	87.5	81	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1411506)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	3368 µg/L	91.5	58	134
EP071: C15 - C28 Fraction	----	100	µg/L	<100	14735 µg/L	98.1	60	133
EP071: C29 - C36 Fraction	----	50	µg/L	<50	7856 µg/L	95.5	54	137
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1412985)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	100	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1411506)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	5225 µg/L	95.3	58	122
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	19994 µg/L	95.3	56	132
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1449 µg/L	107	58	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1412985)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	98.0	66	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 1412985)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	98.2	74	123
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	98.2	77	128
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	102	73	126
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	104	72	131
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	103	74	131
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	98.2	74	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1414951)							
EM1802453-009	TP1-02	EG005T: Arsenic	7440-38-2	50 mg/kg	98.5	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	101	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	102	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	91.9	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	87.1	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	101	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	97.2	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	# Not Determined	68	136
		EG005T: Nickel	7440-02-0	50 mg/kg	82.2	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	93.2	71	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	98.9	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	85.0	74	128
EG005T: Total Metals by ICP-AES (QCLot: 1414952)							
EM1802453-034	TP12-02	EG005T: Arsenic	7440-38-2	50 mg/kg	104	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	112	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	107	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.1	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	97.7	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	99.2	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	99.0	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	112	68	136
		EG005T: Nickel	7440-02-0	50 mg/kg	97.7	78	120

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1414952) - continued							
EM1802453-034	TP12-02	EG005T: Selenium	7782-49-2	50 mg/kg	99.1	71	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	95.7	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	99.8	74	128
EG005T: Total Metals by ICP-AES (QCLot: 1417429)							
EM1802453-042	TP1-01	EG005T: Arsenic	7440-38-2	50 mg/kg	107	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	114	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	113	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.9	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	101	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	106	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	100	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	# Not Determined	68	136
		EG005T: Nickel	7440-02-0	50 mg/kg	100	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	100	71	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	106	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	91.6	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1414950)							
EM1802453-009	TP1-02	EG035T: Mercury	7439-97-6	5 mg/kg	83.7	76	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1414953)							
EM1802453-034	TP12-02	EG035T: Mercury	7439-97-6	5 mg/kg	87.8	76	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1417430)							
EM1802453-042	TP1-01	EG035T: Mercury	7439-97-6	5 mg/kg	115	76	116
EP004: Organic Matter (QCLot: 1414275)							
EM1802442-006	Anonymous	EP004: Organic Matter	----	1.95 %	90.8	70	120
		EP004: Total Organic Carbon	----	1.13 %	90.9	70	120
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 1411665)							
EM1802453-015	TP4-02	EP071SG-S: C10 - C14 Fraction	----	806 mg/kg	84.4	56	110
		EP071SG-S: C15 - C28 Fraction	----	3006 mg/kg	95.9	57	107
		EP071SG-S: C29 - C36 Fraction	----	1584 mg/kg	90.5	62	112
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 1411668)							
EM1802453-028	TP10-02	EP071SG-S: C10 - C14 Fraction	----	806 mg/kg	92.9	56	110
		EP071SG-S: C15 - C28 Fraction	----	3006 mg/kg	105	57	107
		EP071SG-S: C29 - C36 Fraction	----	1584 mg/kg	104	62	112
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 1417678)							
EM1802453-047	TP9-02	EP071SG-S: C10 - C14 Fraction	----	806 mg/kg	87.3	56	110

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 1417678) - continued							
EM1802453-047	TP9-02	EP071SG-S: C15 - C28 Fraction	----	3006 mg/kg	98.5	57	107
		EP071SG-S: C29 - C36 Fraction	----	1584 mg/kg	91.8	62	112
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 1411665)							
EM1802453-015	TP4-02	EP071SG-S: >C10 - C16 Fraction	----	1160 mg/kg	87.8	57	109
		EP071SG-S: >C16 - C34 Fraction	----	3978 mg/kg	92.5	59	113
		EP071SG-S: >C34 - C40 Fraction	----	313 mg/kg	75.9	68	144
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 1411668)							
EM1802453-028	TP10-02	EP071SG-S: >C10 - C16 Fraction	----	1160 mg/kg	95.7	57	109
		EP071SG-S: >C16 - C34 Fraction	----	3978 mg/kg	105	59	113
		EP071SG-S: >C34 - C40 Fraction	----	313 mg/kg	112	68	144
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 1417678)							
EM1802453-047	TP9-02	EP071SG-S: >C10 - C16 Fraction	----	1160 mg/kg	88.3	57	109
		EP071SG-S: >C16 - C34 Fraction	----	3978 mg/kg	94.0	59	113
		EP071SG-S: >C34 - C40 Fraction	----	313 mg/kg	84.8	68	144
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1411663)							
EM1802453-008	TP1-01	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	96.7	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	122	52	148
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1411667)							
EM1802453-026	TP9-02	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	104	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	102	52	148
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1417676)							
EM1802453-042	TP1-01	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	117	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	128	52	148
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1411490)							
EM1802453-004	duplicate 2	EP080: C6 - C9 Fraction	----	28 mg/kg	51.9	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1411501)							
EM1802453-027	TP10-01	EP080: C6 - C9 Fraction	----	28 mg/kg	83.2	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1411664)							
EM1802453-004	duplicate 2	EP071: C10 - C14 Fraction	----	806 mg/kg	97.8	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	103	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	101	64	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1411666)							
EM1802453-027	TP10-01	EP071: C10 - C14 Fraction	----	806 mg/kg	99.8	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	106	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	107	64	118

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1416873)							
EM1802453-042	TP1-01	EP080: C6 - C9 Fraction	----	28 mg/kg	53.7	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1417677)							
EM1802453-043	TP2-01	EP071: C10 - C14 Fraction	----	806 mg/kg	104	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	110	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	110	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1411490)							
EM1802453-004	duplicate 2	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	50.1	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1411501)							
EM1802453-027	TP10-01	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	84.0	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1411664)							
EM1802453-004	duplicate 2	EP071: >C10 - C16 Fraction	----	1160 mg/kg	102	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	102	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	103	44	126
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1411666)							
EM1802453-027	TP10-01	EP071: >C10 - C16 Fraction	----	1160 mg/kg	104	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	106	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	110	44	126
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1416873)							
EM1802453-042	TP1-01	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	53.1	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1417677)							
EM1802453-043	TP2-01	EP071: >C10 - C16 Fraction	----	1160 mg/kg	108	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	110	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	112	44	126
EP080: BTEXN (QCLot: 1411490)							
EM1802453-004	duplicate 2	EP080: Benzene	71-43-2	2 mg/kg	60.2	50	136
		EP080: Toluene	108-88-3	2 mg/kg	70.5	56	139
EP080: BTEXN (QCLot: 1411501)							
EM1802453-027	TP10-01	EP080: Benzene	71-43-2	2 mg/kg	87.1	50	136
		EP080: Toluene	108-88-3	2 mg/kg	95.3	56	139
EP080: BTEXN (QCLot: 1416873)							
EM1802453-042	TP1-01	EP080: Benzene	71-43-2	2 mg/kg	62.1	50	136
		EP080: Toluene	108-88-3	2 mg/kg	69.3	56	139
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 1419404)							
EM1802453-035	TP12-03	EP202: Mecoprop	93-65-2	0.1 mg/kg	61.9	60	140
		EP202: MCPA	94-74-6	0.1 mg/kg	60.7	57	143

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 1419404) - continued							
EM1802453-035	TP12-03	EP202: 2.4-D	94-75-7	0.1 mg/kg	78.5	68	139
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	64.5	51	145
		EP202: 2.4.5-T	93-76-5	0.1 mg/kg	67.5	57	142
		EP202: Picloram	1918-02-1	0.1 mg/kg	62.5	49	138
		EP202: Clopyralid	1702-17-6	0.1 mg/kg	76.3	49	149

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1413408)							
EM1802359-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	99.6	82	118
		EG020A-T: Beryllium	7440-41-7	1 mg/L	97.3	79	121
		EG020A-T: Barium	7440-39-3	1 mg/L	98.5	80	114
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	99.6	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	94.1	80	118
		EG020A-T: Cobalt	7440-48-4	1 mg/L	95.1	82	120
		EG020A-T: Copper	7440-50-8	1 mg/L	95.2	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	91.1	83	121
		EG020A-T: Manganese	7439-96-5	1 mg/L	95.3	73	123
		EG020A-T: Nickel	7440-02-0	1 mg/L	98.2	80	118
		EG020A-T: Vanadium	7440-62-2	1 mg/L	95.7	81	119
		EG020A-T: Zinc	7440-66-6	1 mg/L	98.6	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1417107)							
EM1802394-004	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	98.2	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1412985)							
EM1802362-002	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	96.1	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1412985)							
EM1802362-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	94.8	44	122
EP080: BTEXN (QCLot: 1412985)							
EM1802362-002	Anonymous	EP080: Benzene	71-43-2	20 µg/L	105	68	130
		EP080: Toluene	108-88-3	20 µg/L	107	72	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1802453**	Page	: 1 of 15
Client	: **SEMF PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Telephone	: +61-3-8549 9630
Project	: Outlands DSI	Date Samples Received	: 02-Feb-2018
Site	: ----	Issue Date	: 20-Feb-2018
Sampler	: FIONA KESERUE-PONTE	No. of samples received	: 47
Order number	: 4193.005	No. of samples analysed	: 40

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EM1802453--009	TP1-02	**Manganese**	7439-96-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005T: Total Metals by ICP-AES	EM1802453--042	TP1-01	**Manganese**	7439-96-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP202A: Phenoxyacetic Acid Herbicides by LCMS						
Soil Glass Jar - Unpreserved						
TP12-03	15-Feb-2018	14-Feb-2018	**1**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Matrix Spikes (MS)					
Pesticides by GCMS	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
TRH - Semivolatile Fraction	0	9	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
TRH - Semivolatile Fraction	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
NEPM 1, NEPM 2, NEPM 3	**31-Jan-2018**	**06-Feb-2018**	07-Feb-2018	✓	**06-Feb-2018**	06-Feb-2018	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
triplicate 1, TP1-01, TP2-01, TP3-01, TP5-01, TP6-02, TP9-02	**06-Feb-2018**	**----**	----	----	**07-Feb-2018**	20-Feb-2018	✓
Soil Glass Jar - Unpreserved (EA055)							
duplicate 2, NEPM 1, NEPM 2, NEPM 3, TP1-02, TP2-02, TP3-02, TP4-01, TP4-02, TP5-02, TP6-01, TP7-01, TP7-02, DUPLICATE 1, TP8-01, TP8-02, TP9-01, TP10-01, TP10-02, TP13-01, TP13-02, TP11-01, TP11-02, TP12-01, TP12-02, TP12-03, TP16-01, TP16-02, TP14-01, TP15-01, TP15-02	**31-Jan-2018**	**----**	----	----	**07-Feb-2018**	14-Feb-2018	✓
EA150: Soil Classification based on Particle Size							
Snap Lock Bag (EA150H)							
NEPM 1, NEPM 2, NEPM 3	**31-Jan-2018**	**----**	----	----	**07-Feb-2018**	30-Jul-2018	✓
EA152: Soil Particle Density							
Snap Lock Bag (EA152)							
NEPM 1, NEPM 2, NEPM 3	**31-Jan-2018**	**----**	----	----	**07-Feb-2018**	30-Jul-2018	✓
ED006: Exchangeable Cations on Alkaline Soils							
Soil Glass Jar - Unpreserved (ED006)							
NEPM 1, NEPM 2	**31-Jan-2018**	**09-Feb-2018**	28-Feb-2018	✓	**09-Feb-2018**	28-Feb-2018	✓
ED007: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED007)							
NEPM 3	**31-Jan-2018**	**06-Feb-2018**	28-Feb-2018	✓	**09-Feb-2018**	28-Feb-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED008: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED008)							
NEPM 3	**31-Jan-2018**	**06-Feb-2018**	28-Feb-2018	✓	**09-Feb-2018**	28-Feb-2018	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
triplicate 1, TP1-01, TP2-01, TP3-01, TP5-01, TP6-02, TP9-02	**06-Feb-2018**	**07-Feb-2018**	05-Aug-2018	✓	**07-Feb-2018**	05-Aug-2018	✓
Soil Glass Jar - Unpreserved (EG005T)							
duplicate 2, NEPM 1, NEPM 2, NEPM 3, TP1-02, TP2-02, TP3-02, TP4-01, TP4-02, TP5-02, TP6-01, TP7-01, TP7-02, DUPLICATE 1, TP8-01, TP8-02, TP9-01, TP10-01, TP10-02, TP13-01, TP13-02, TP11-01, TP11-02, TP12-01, TP12-02, TP12-03, TP16-01, TP16-02, TP14-01, TP15-01, TP15-02	**31-Jan-2018**	**06-Feb-2018**	30-Jul-2018	✓	**07-Feb-2018**	30-Jul-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
triplicate 1, TP1-01, TP2-01, TP3-01, TP5-01, TP6-02, TP9-02	**06-Feb-2018**	**07-Feb-2018**	06-Mar-2018	✓	**08-Feb-2018**	06-Mar-2018	✓
Soil Glass Jar - Unpreserved (EG035T)							
duplicate 2, TP1-02, TP2-02, TP3-02, TP4-01, TP4-02, TP5-02, TP6-01, TP7-01, TP7-02, DUPLICATE 1, TP8-01, TP8-02, TP9-01, TP10-01, TP10-02, TP13-01, TP13-02, TP11-01, TP11-02, TP12-01, TP12-02, TP12-03, TP16-01, TP16-02, TP14-01, TP15-01, TP15-02	**31-Jan-2018**	**06-Feb-2018**	28-Feb-2018	✓	**09-Feb-2018**	28-Feb-2018	✓
EP004: Organic Matter							
Soil Glass Jar - Unpreserved (EP004)							
NEPM 1, NEPM 2, NEPM 3	**31-Jan-2018**	**07-Feb-2018**	28-Feb-2018	✓	**07-Feb-2018**	28-Feb-2018	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
TP12-03	**31-Jan-2018**	**06-Feb-2018**	14-Feb-2018	✓	**06-Feb-2018**	18-Mar-2018	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
TP12-03	**31-Jan-2018**	**06-Feb-2018**	14-Feb-2018	✓	**06-Feb-2018**	18-Mar-2018	✓
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup							
Soil Glass Jar - Unpreserved (EP071SG-S)							
TP6-02, TP9-02	**06-Feb-2018**	**07-Feb-2018**	20-Feb-2018	✓	**08-Feb-2018**	19-Mar-2018	✓
Soil Glass Jar - Unpreserved (EP071SG-S)							
TP1-02, TP4-02, TP5-02, TP7-02, DUPLICATE 1, TP8-02, TP10-02, TP13-01, TP12-02, TP14-01, TP15-01	**31-Jan-2018**	**06-Feb-2018**	14-Feb-2018	✓	**07-Feb-2018**	18-Mar-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup							
Soil Glass Jar - Unpreserved (EP071SG-S)							
TP6-02, TP9-02	**06-Feb-2018**	**07-Feb-2018**	20-Feb-2018	✓	**08-Feb-2018**	19-Mar-2018	✓
Soil Glass Jar - Unpreserved (EP071SG-S)							
TP1-02, TP4-02, TP5-02, TP7-02, DUPLICATE 1, TP8-02, TP10-02, TP13-01, TP12-02, TP14-01, TP15-01	**31-Jan-2018**	**06-Feb-2018**	14-Feb-2018	✓	**07-Feb-2018**	18-Mar-2018	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
triplicate 1, TP1-01, TP2-01, TP3-01, TP5-01, TP6-02, TP9-02	**06-Feb-2018**	**07-Feb-2018**	20-Feb-2018	✓	**08-Feb-2018**	19-Mar-2018	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
duplicate 2, TP1-02, TP2-02, TP3-02, TP4-01, TP4-02, TP5-02, TP6-01, TP7-01, TP7-02, DUPLICATE 1, TP8-01, TP8-02, TP9-01, TP10-01, TP10-02, TP13-01, TP13-02, TP11-01, TP11-02, TP12-01, TP12-02, TP12-03, TP16-01, TP16-02, TP14-01, TP15-01, TP15-02	**31-Jan-2018**	**06-Feb-2018**	14-Feb-2018	✓	**07-Feb-2018**	18-Mar-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
triplicate 1, TP1-01, TP2-01, TP3-01, TP5-01, TP6-02, TP9-02	**06-Feb-2018**	**07-Feb-2018**	20-Feb-2018	✓	**07-Feb-2018**	20-Feb-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
triplicate 1, TP1-01, TP2-01, TP3-01, TP5-01	**06-Feb-2018**	**07-Feb-2018**	20-Feb-2018	✓	**08-Feb-2018**	19-Mar-2018	✓
Soil Glass Jar - Unpreserved (EP080)							
TP10-01, TP10-02, TP13-01, TP13-02, TP11-01, TP11-02, TP12-01, TP12-02, TP12-03, TP16-01, TP16-02, TP14-01, TP15-01, TP15-02	**31-Jan-2018**	**05-Feb-2018**	14-Feb-2018	✓	**06-Feb-2018**	14-Feb-2018	✓
Soil Glass Jar - Unpreserved (EP080)							
duplicate 2, TP1-02, TP2-02, TP3-02, TP4-01, TP4-02, TP5-02, TP6-01, TP7-01, TP7-02, DUPLICATE 1, TP8-01, TP8-02, TP9-01	**31-Jan-2018**	**05-Feb-2018**	14-Feb-2018	✓	**07-Feb-2018**	14-Feb-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
duplicate 2, TP2-02, TP3-02, TP4-01, TP6-01, TP7-01, TP8-01, TP9-01, TP10-01, TP13-02, TP11-01, TP11-02, TP12-01, TP12-03, TP16-01, TP16-02, TP15-02	**31-Jan-2018**	**06-Feb-2018**	14-Feb-2018	✓	**07-Feb-2018**	18-Mar-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
triplicate 1, TP1-01, TP2-01, TP3-01, TP5-01, TP6-02, TP9-02	**06-Feb-2018**	**07-Feb-2018**	20-Feb-2018	✓	**07-Feb-2018**	20-Feb-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
triplicate 1, TP1-01, TP2-01, TP3-01, TP5-01	**06-Feb-2018**	**07-Feb-2018**	20-Feb-2018	✓	**08-Feb-2018**	19-Mar-2018	✓
Soil Glass Jar - Unpreserved (EP080)							
TP10-01, TP10-02, TP13-01, TP13-02, TP11-01, TP11-02, TP12-01, TP12-02, TP12-03, TP16-01, TP16-02, TP14-01, TP15-01, TP15-02	**31-Jan-2018**	**05-Feb-2018**	14-Feb-2018	✓	**06-Feb-2018**	14-Feb-2018	✓
Soil Glass Jar - Unpreserved (EP080)							
duplicate 2, TP1-02, TP2-02, TP3-02, TP4-01, TP4-02, TP5-02, TP6-01, TP7-01, TP7-02, DUPLICATE 1, TP8-01, TP8-02, TP9-01	**31-Jan-2018**	**05-Feb-2018**	14-Feb-2018	✓	**07-Feb-2018**	14-Feb-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
duplicate 2, TP2-02, TP3-02, TP4-01, TP6-01, TP7-01, TP8-01, TP9-01, TP10-01, TP13-02, TP11-01, TP11-02, TP12-01, TP12-03, TP16-01, TP16-02, TP15-02	**31-Jan-2018**	**06-Feb-2018**	14-Feb-2018	✓	**07-Feb-2018**	18-Mar-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
triplicate 1, TP1-01, TP2-01, TP3-01, TP5-01, TP6-02, TP9-02	**06-Feb-2018**	**07-Feb-2018**	20-Feb-2018	✓	**07-Feb-2018**	20-Feb-2018	✓
Soil Glass Jar - Unpreserved (EP080)							
TP10-01, TP10-02, TP13-01, TP13-02, TP11-01, TP11-02, TP12-01, TP12-02, TP12-03, TP16-01, TP16-02, TP14-01, TP15-01, TP15-02	**31-Jan-2018**	**05-Feb-2018**	14-Feb-2018	✓	**06-Feb-2018**	14-Feb-2018	✓
Soil Glass Jar - Unpreserved (EP080)							
duplicate 2, TP1-02, TP2-02, TP3-02, TP4-01, TP4-02, TP5-02, TP6-01, TP7-01, TP7-02, DUPLICATE 1, TP8-01, TP8-02, TP9-01	**31-Jan-2018**	**05-Feb-2018**	14-Feb-2018	✓	**07-Feb-2018**	14-Feb-2018	✓
EP202A: Phenoxyacetic Acid Herbicides by LCMS							
Soil Glass Jar - Unpreserved (EP202)							
TP12-03	**31-Jan-2018**	**15-Feb-2018**	14-Feb-2018	×	**15-Feb-2018**	27-Mar-2018	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG020A-T)							
rinsate digger	**31-Jan-2018**	**06-Feb-2018**	30-Jul-2018	✓	**06-Feb-2018**	30-Jul-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)							
rinsate digger	**31-Jan-2018**	**----**	----	----	**12-Feb-2018**	28-Feb-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
rinsate digger	**31-Jan-2018**	**05-Feb-2018**	07-Feb-2018	✓	**06-Feb-2018**	17-Mar-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
rinsate digger, TB1	**31-Jan-2018**	**06-Feb-2018**	14-Feb-2018	✓	**06-Feb-2018**	14-Feb-2018	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071)								
rinsate digger		**31-Jan-2018**	**05-Feb-2018**	07-Feb-2018	✓	**06-Feb-2018**	17-Mar-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
rinsate digger,	TB1	**31-Jan-2018**	**06-Feb-2018**	14-Feb-2018	✓	**06-Feb-2018**	14-Feb-2018	✓
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
rinsate digger,	TB1	**31-Jan-2018**	**06-Feb-2018**	14-Feb-2018	✓	**06-Feb-2018**	14-Feb-2018	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Exchangeable Cations	ED007	2	5	**40.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	6	53	**11.32**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	5	35	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	5	48	**10.42**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	6	51	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	23	**17.39**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	3	13	**23.08**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	6	41	**14.63**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Exchangeable Cations	ED007	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	3	35	**8.57**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	48	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	51	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	3	23	**13.04**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	3	13	**23.08**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	41	**7.32**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Exchangeable Cations	ED007	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	3	35	**8.57**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	48	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	51	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	3	23	**13.04**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	3	13	**23.08**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Method Blanks (MB) - Continued							
TRH Volatiles/BTEX	EP080	3	41	**7.32**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Organic Matter	EP004	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	3	35	**8.57**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	48	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	51	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	3	23	**13.04**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	3	13	**23.08**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	41	**7.32**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	9	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	9	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons (2011) 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3)
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis by Hydrometer	EA150H	SOIL	Particle Size Analysis by Hydrometer according to AS1289.3.6.3 - 2003
Soil Particle Density	* EA152	SOIL	Soil Particle Density by AS 1289.3.5.1-2006 : Methods of testing soils for engineering purposes - Soil classification tests - Determination of the soil particle density of a soil - Standard method
Exchangeable Cations on Alkaline Soils	* ED006	SOIL	In house: Referenced to Soil Survey Test Method C5. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with alcoholic ammonium chloride at pH 8.5. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil.
Exchangeable Cations	ED007	SOIL	In house: Referenced to Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Exchangeable Cations with pre-treatment	ED008	SOIL	In house: Referenced to Rayment & Higginson (2011) Method 15A2. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Organic Matter	EP004	SOIL	In house: Referenced to AS1289.4.1.1 - 1997. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM (2013) Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	SOIL	In house: Referenced to USEPA SW 846 - 8015A. Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.

Analytical Methods	Method	Matrix	Method Descriptions
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	SOIL	In house: LCMS (Electrospray in negative mode). Residues of acid herbicides are extracted from soil samples under the alkaline condition. An aliquot of the alkaline aqueous phase is taken and acidified before a SPE cleanup. After eluting off from the SPE cartridge, residues of acid herbicides are dissolved in HPLC mobile phase prior to instrument analysis.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Exchangeable Cations Preparation Method (Alkaline Soils)	* ED006PR	SOIL	In house: Referenced to Rayment and Lyons 2011 method 15C1.
Exchangeable Cations Preparation Method	ED007PR	SOIL	In house: Referenced to Rayment & Higginson (1992) method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
Hot Block Digest for metals in soils sediments and sludges	* EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Organic Matter	EP004-PR	SOIL	In house: Referenced to AS1289.4.1.1 - 1997. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM (2013) Schedule B(3) (Method 105)

Preparation Methods	Method	Matrix	Method Descriptions
Extraction for Phenoxy Acid Herbicides in Soils.	EP202-PR	SOIL	In-House: Alkaline extract followed by SPE clean up of acidified portion of the sample extract.
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	* EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1802479**	Page	: 1 of 29
Client	: **SEMF PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI	Date Samples Received	: 05-Feb-2018
Order number	: 4193.005	Date Analysis Commenced	: 06-Feb-2018
C-O-C number	: ----	Issue Date	: 20-Feb-2018
Sampler	: FIONA KESERUE-PONTE		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 44		
No. of samples analysed	: 44		

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Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
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General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1419619)									
EM1802479-001	Triplicate 3	EA055: Moisture Content	----	1	%	24.8	24.8	0.00	0% - 20%
EM1802479-014	T15-06	EA055: Moisture Content	----	1	%	27.7	28.2	1.53	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1419620)									
EM1802479-024	T5-08	EA055: Moisture Content	----	1	%	5.7	5.8	0.00	No Limit
EM1802479-034	T14-04	EA055: Moisture Content	----	1	%	6.6	6.5	2.01	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1419621)									
EM1802479-044	T11-08	EA055: Moisture Content	----	1	%	28.5	30.0	4.98	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 1417444)									
EM1802479-001	Triplicate 3	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	30	30	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	6	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	5	5	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	5	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	10	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	72	72	0.00	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	11	10	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	39	38	0.00	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EM1802479-013	T15-05	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 1417444) - continued									
EM1802479-013	T15-05	EG005T: Barium	7440-39-3	10	mg/kg	100	100	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	4	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	3	3	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	3	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	40	40	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	59	58	0.00	0% - 50%
		EG005T: Manganese	7439-96-5	5	mg/kg	222	219	1.23	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	9	8	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	149	147	1.04	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1417447)									
EM1802479-024	T5-08	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	7	7	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	12	12	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	18	18	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	70	70	0.00	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	354	357	0.939	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	48	48	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	40	40	0.00	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EM1802479-033	T14-03	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	6	6	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	4440	4400	0.896	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	38	38	0.00	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	11	11	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	69	68	0.00	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	44	44	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	1060	1040	1.58	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	4360	4330	0.831	0% - 20%
		EG005T: Manganese	7439-96-5	5	mg/kg	626	624	0.437	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	18	18	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	5080	5040	0.819	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 1417447) - continued									
EM1802479-033	T14-03	EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1417445)									
EM1802479-001	Triplicate 3	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1802479-013	T15-05	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.2	0.2	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1417446)									
EM1802479-024	T5-08	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1802479-033	T14-03	EG035T: Mercury	7439-97-6	0.1	mg/kg	1.5	1.5	0.00	0% - 50%
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1411684)									
EM1802479-006	Triplicate 5	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1411689)									
EM1802479-026	T4-01	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1411689) - continued									
EM1802479-026	T4-01	EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1411684)									
EM1802479-006	Triplicate 5	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1411689)									
EM1802479-026	T4-01	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1411689) - continued									
EM1802479-026	T4-01	EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 1411682)									
EM1802479-014	T15-06	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EM1802479-006	Triplicate 5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 1411688)									
EM1802479-033	T14-03	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 1411688) - continued									
EM1802479-033	T14-03	EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EM1802479-026	T4-01	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 1419899)									
EM1802626-003	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1411682)									
EM1802479-014	T15-06	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1411682) - continued									
EM1802479-014	T15-06	EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1802479-006	Triplicate 5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1411688)									
EM1802479-033	T14-03	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1411688) - continued									
EM1802479-033	T14-03	EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1802479-026	T4-01	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1419899)									
EM1802626-003	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	1.8	1.4	28.3	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	10.3	# 6.3	48.5	0% - 20%
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	2.9	1.7	50.7	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	14.3	# 8.9	47.0	0% - 20%
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	15.5	# 9.6	47.4	0% - 20%
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	6.7	4.2	44.6	0% - 50%
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	5.6	3.4	48.4	0% - 50%
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	7.0	4.8	38.1	0% - 50%
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	2.8	1.9	38.4	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	6.9	4.4	44.3	0% - 50%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1419899) - continued									
EM1802626-003	Anonymous	EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	3.3	2.2	37.5	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	0.9	0.6	40.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	4.3	3.0	37.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1411657)									
EM1802479-001	Triplicate 3	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1802479-014	T15-06	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1411661)									
EM1802479-024	T5-08	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1802479-034	T14-04	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1411683)									
EM1802479-014	T15-06	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1802479-006	Triplicate 5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1411687)									
EM1802479-033	T14-03	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1802479-026	T4-01	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1413291)									
EM1802475-021	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	76	53	36.3	No Limit
EM1802495-009	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1419900)									
EM1802660-005	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	710	500	34.8	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	500	350	34.4	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	130	90	37.6	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	1340	# 940	35.1	0% - 20%
EM1802626-003	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	300	200	41.6	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	140	<100	33.8	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	440	200	75.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1411657)									
EM1802479-001	Triplicate 3	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1802479-014	T15-06	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1411661)									
EM1802479-024	T5-08	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1802479-034	T14-04	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1411683)									
EM1802479-014	T15-06	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1802479-006	Triplicate 5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1411687)									
EM1802479-033	T14-03	EP071: >C16 - C34 Fraction	----	100	mg/kg	110	<100	10.1	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	110	<50	75.0	No Limit
EM1802479-026	T4-01	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1413291)									
EM1802475-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	100	72	32.7	No Limit
EM1802495-009	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1419900)									
EM1802660-005	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	1100	780	34.4	0% - 50%
		EP071: >C34 - C40 Fraction	----	100	mg/kg	180	130	35.4	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	120	80	37.9	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	1400	# 990	34.3	0% - 20%
EM1802626-003	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	400	260	40.8	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	400	260	42.4	No Limit
EP080: BTEXN (QC Lot: 1411657)									
EM1802479-001	Triplicate 3	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 1411657) - continued									
EM1802479-001	Triplicate 3	EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1802479-014	T15-06	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP080: BTEXN (QC Lot: 1411661)									
EM1802479-024	T5-08	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1802479-034	T14-04	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP080: BTEXN (QC Lot: 1413291)									
EM1802475-021	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	0.7	<0.5	28.3	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	3.6	2.3	44.8	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	1.4	0.9	43.5	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1802495-009	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 1413291) - continued									
EM1802495-009	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 1419415)									
EB1803273-005	Anonymous	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
EM1802479-027	T4-02	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 1413408)									
EM1802422-003	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0002	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.007	0.007	0.00	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.044	0.043	3.49	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.018	0.018	0.00	0% - 50%
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.005	0.005	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 1413408) - continued									
EM1802422-003	Anonymous	EG020A-T: Lead	7439-92-1	0.001	mg/L	0.012	0.012	0.00	0% - 50%
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.034	0.031	8.26	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.006	22.2	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	0.02	0.02	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	0.02	0.02	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	3.67	3.63	1.22	0% - 20%
EM1802359-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.008	0.009	14.9	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.002	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.017	0.018	0.00	0% - 50%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.066	0.067	2.10	0% - 50%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 1413413)									
EM1802479-005	rinsate excavator	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0002	<0.0001	75.4	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.027	0.031	12.4	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.007	0.006	16.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.005	0.005	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.017	0.017	0.00	0% - 50%
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.056	0.055	0.00	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.029	0.026	10.2	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1417107)									
EM1802213-034	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1802495-021	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1412992)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1412992) - continued									
EM1802394-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1802475-023	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	27300	19600	32.6	0% - 50%
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1412992)									
EM1802394-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1802475-023	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	37700	26900	33.3	0% - 50%
EP080: BTEXN (QC Lot: 1412992)									
EM1802394-004	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1802475-023	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<10	<10	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	12	10	13.7	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	1120	# 487	79.2	0% - 20%
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	861	# 368	80.1	0% - 20%
		EP080: ortho-Xylene	95-47-6	2	µg/L	140	# 63	76.6	0% - 50%
		EP080: Naphthalene	91-20-3	5	µg/L	1450	# 596	83.4	0% - 20%

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1417444)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	83.8	79	113
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	81.4	79	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	97.2	85	120
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	89.0	82	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	86.5	85	109
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	90.2	83	109
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	88.3	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	85.2	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	86.0	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	92.7	82	107
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	99.0	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	99.2	93	109
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	92.1	80	109
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	98.5	82	111
EG005T: Total Metals by ICP-AES (QCLot: 1417447)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	83.5	79	113
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	82.0	79	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	97.2	85	120
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	91.1	82	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	86.4	85	109
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	94.2	83	109
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	88.2	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	85.1	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	88.5	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	92.6	82	107
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	98.9	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	99.2	93	109
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	92.0	80	109
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	98.4	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1417445)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	92.1	77	104
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1417446)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	90.3	77	104
EP068A: Organochlorine Pesticides (OC) (QCLot: 1411684)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 1411684) - continued								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	95.9	65	120
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	68	121
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	95.4	70	121
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	64	119
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	56	121
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	73.8	63	114
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.6	64	121
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	68	120
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	93.7	72	124
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	107	69	125
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	84.9	71	123
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	59	123
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	96.0	70	123
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.8	64	119
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	69	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	66	128
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	90.0	62	121
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	112	57	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	93.2	60	124
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	101	73	120
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	80.4	61	121
EP068A: Organochlorine Pesticides (OC) (QCLot: 1411689)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	89.0	65	120
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	85.2	68	121
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	70	121
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	89.0	64	119
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	79.7	56	121
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	82.5	63	114
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	84.8	64	121
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	88.2	68	120
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.0	72	124
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	69	125
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	88.4	71	123
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	87.9	59	123
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	89.5	70	123
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	64	119
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	89.7	69	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.1	66	128
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	98.9	62	121

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 1411689) - continued								
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.1	57	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	88.9	60	124
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	99.6	73	120
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	89.1	61	121
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1411684)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	110	63	127
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.3	53	137
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	90.1	10	136
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	87.5	56	127
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	94.0	70	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	106	70	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	86.0	50	132
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	81.3	63	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	95.1	70	122
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	107	58	123
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	91.1	56	119
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	88.2	68	119
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	94.2	45	122
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	100	67	116
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	63.7	50	127
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	97.4	68	121
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	85.6	60	123
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	105	68	122
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	82.2	24	113
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1411689)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	111	63	127
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	53	137
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	96.9	10	136
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	104	56	127
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	70	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	90.2	70	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	94.7	50	132
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	95.8	63	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.6	70	122
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	93.6	58	123
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	94.4	56	119
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	68	119
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	45	122
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.3	67	116

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1411689) - continued								
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	94.2	50	127
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	93.2	68	121
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	97.4	60	123
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	107	68	122
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	100	24	113
EP075(SIM)A: Phenolic Compounds (QCLot: 1411682)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	3 mg/kg	110	70	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	3 mg/kg	108	74	128
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	3 mg/kg	112	76	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	6 mg/kg	96.3	70	128
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	3 mg/kg	109	56	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	3 mg/kg	120	70	122
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	3 mg/kg	114	70	121
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	3 mg/kg	112	70	126
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	3 mg/kg	114	67	120
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	3 mg/kg	104	63	121
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	3 mg/kg	100	71	133
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	6 mg/kg	94.7	20	110
EP075(SIM)A: Phenolic Compounds (QCLot: 1411688)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	3 mg/kg	110	70	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	3 mg/kg	111	74	128
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	3 mg/kg	112	76	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	6 mg/kg	111	70	128
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	3 mg/kg	85.6	56	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	3 mg/kg	103	70	122
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	3 mg/kg	110	70	121
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	3 mg/kg	112	70	126
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	3 mg/kg	108	67	120
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	3 mg/kg	104	63	121
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	3 mg/kg	106	71	133
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	6 mg/kg	69.1	20	110
EP075(SIM)A: Phenolic Compounds (QCLot: 1419899)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	3 mg/kg	110	70	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	3 mg/kg	106	74	128
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	3 mg/kg	103	76	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	6 mg/kg	107	70	128
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	3 mg/kg	84.6	56	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	3 mg/kg	98.0	70	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 1419899) - continued								
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	3 mg/kg	102	70	121
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	3 mg/kg	109	70	126
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	3 mg/kg	104	67	120
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	3 mg/kg	95.4	63	121
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	3 mg/kg	110	71	133
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	6 mg/kg	66.5	20	110
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1411682)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	93.0	75	131
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	119	70	132
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	114	80	128
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	118	70	128
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	111	80	128
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.7 mg/kg	124	72	126
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	120	70	128
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	118	80	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	103	70	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	109	80	126
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	117	71	124
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	100	75	125
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	116	70	125
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	116	71	128
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	119	72	126
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	117	68	127
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1411688)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	114	75	131
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	111	70	132
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	114	80	128
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	114	70	128
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	117	80	128
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	110	72	126
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	119	70	128
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	121	80	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	110	70	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	120	80	126
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	106	71	124
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	118	75	125
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	102	70	125

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1411688) - continued								
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	106	71	128
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	106	72	126
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	106	68	127
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1419899)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	116	75	131
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	101	70	132
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	114	80	128
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	113	70	128
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	119	80	128
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	108	72	126
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	117	70	128
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	122	80	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	110	70	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	123	80	126
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	101	71	124
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	119	75	125
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	93.1	70	125
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	100	71	128
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	98.6	72	126
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	100	68	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1411657)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	121	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1411661)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	113	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1411683)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	105	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	108	84	115
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	105	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1411687)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	104	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	108	84	115
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	108	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1413291)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	104	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1419900)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1419900) - continued								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	101	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	104	84	115
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	99.5	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1411657)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	118	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1411661)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	110	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1411683)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	104	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	107	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	96.4	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1411687)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	106	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	109	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	107	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1413291)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	103	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1419900)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	100	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	102	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	99.0	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN (QCLot: 1411657)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	102	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	119	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	117	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	127	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	127	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	105	66	130
EP080: BTEXN (QCLot: 1411661)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	100	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	109	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	110	73	125

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 1411661) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	118	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	116	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	103	66	130
EP080: BTEXN (QCLot: 1413291)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	96.8	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	104	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	102	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	114	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	114	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	97.1	66	130
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 1419415)								
EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	0.1 mg/kg	58.4	54	128
EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	0.1 mg/kg	66.4	46	130
EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	0.1 mg/kg	60.8	52	135
EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	0.1 mg/kg	65.5	60	130
EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	0.1 mg/kg	80.2	57	131
EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	0.1 mg/kg	56.5	50	141
EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	0.1 mg/kg	69.8	69	131
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	0.1 mg/kg	65.2	51	141
EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	0.1 mg/kg	58.5	41	126
EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	0.1 mg/kg	57.0	57	139
EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	0.1 mg/kg	59.2	39	137
EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	0.1 mg/kg	97.5	49	129
EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	0.1 mg/kg	58.8	49	106
EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	0.1 mg/kg	63.1	53	128

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 1413408)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	90	110
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	101	88	113
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	104	88	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	107	86	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.9	87	109
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	102	88	113
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.1	87	108

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1413408) - continued								
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	101	88	109
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	103	88	111
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	99.1	85	113
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	101	88	112
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	87	113
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	111	88	118
EG020T: Total Metals by ICP-MS (QCLot: 1413413)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	90	110
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	99.7	88	113
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	95.0	88	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	107	86	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.9	87	109
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	100	88	113
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.8	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.8	88	109
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	102	88	111
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	99.7	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	97.4	85	113
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	104	88	112
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	99.4	87	113
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	108	88	118
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1417107)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	87.5	81	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1412992)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	85.7	68	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1413229)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	3368 µg/L	91.4	58	134
EP071: C15 - C28 Fraction	----	100	µg/L	<100	14735 µg/L	98.1	60	133
EP071: C29 - C36 Fraction	----	50	µg/L	<50	7856 µg/L	95.5	54	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1412992)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	82.7	66	123
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1413229)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	5225 µg/L	95.3	58	122
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	19994 µg/L	95.3	56	132
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1449 µg/L	106	58	137
EP080: BTEXN (QCLot: 1412992)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	93.6	74	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 1412992) - continued								
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	96.6	77	128
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	98.5	73	126
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	101	72	131
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	102	74	131
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	101	74	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1417444)							
EM1802479-004	Duplicate 3	EG005T: Arsenic	7440-38-2	50 mg/kg	97.9	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	108	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	110	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.3	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	96.3	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	98.6	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	97.1	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	95.4	68	136
		EG005T: Nickel	7440-02-0	50 mg/kg	99.9	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	96.6	71	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	90.4	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	102	74	128
EG005T: Total Metals by ICP-AES (QCLot: 1417447)							
EM1802479-025	T5-09	EG005T: Arsenic	7440-38-2	50 mg/kg	93.4	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	89.9	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	100	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	84.8	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	86.4	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	100	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	83.4	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	# Not Determined	68	136
		EG005T: Nickel	7440-02-0	50 mg/kg	80.1	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	84.9	71	125

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1417447) - continued							
EM1802479-025	T5-09	EG005T: Vanadium	7440-62-2	50 mg/kg	101	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	82.6	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1417445)							
EM1802479-004	Duplicate 3	EG035T: Mercury	7439-97-6	5 mg/kg	92.0	76	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1417446)							
EM1802479-025	T5-09	EG035T: Mercury	7439-97-6	5 mg/kg	95.7	76	116
EP068A: Organochlorine Pesticides (OC) (QCLot: 1411689)							
EM1802479-027	T4-02	EP068: gamma-BHC	58-89-9	0.5 mg/kg	106	22	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	95.6	18	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	108	23	136
		EP068: Dieldrin	60-57-1	0.5 mg/kg	104	42	136
		EP068: Endrin	72-20-8	0.5 mg/kg	108	23	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	77.1	20	133
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1411689)							
EM1802479-027	T4-02	EP068: Diazinon	333-41-5	0.5 mg/kg	108	49	135
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	96.2	41	127
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	97.5	47	133
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	93.4	45	133
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	84.1	40	128
EP075(SIM)A: Phenolic Compounds (QCLot: 1411682)							
EM1802479-004	Duplicate 3	EP075(SIM): Phenol	108-95-2	3 mg/kg	106	63	117
		EP075(SIM): 2-Chlorophenol	95-57-8	3 mg/kg	120	65	123
		EP075(SIM): 2-Nitrophenol	88-75-5	3 mg/kg	108	40	134
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	3 mg/kg	112	56	122
		EP075(SIM): Pentachlorophenol	87-86-5	3 mg/kg	104	15	139
EP075(SIM)A: Phenolic Compounds (QCLot: 1411688)							
EM1802479-025	T5-09	EP075(SIM): Phenol	108-95-2	3 mg/kg	105	63	117
		EP075(SIM): 2-Chlorophenol	95-57-8	3 mg/kg	105	65	123
		EP075(SIM): 2-Nitrophenol	88-75-5	3 mg/kg	77.6	40	134
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	3 mg/kg	99.1	56	122
		EP075(SIM): Pentachlorophenol	87-86-5	3 mg/kg	56.2	15	139
EP075(SIM)A: Phenolic Compounds (QCLot: 1419899)							
EM1802479-043	T11-07	EP075(SIM): Phenol	108-95-2	3 mg/kg	107	63	117
		EP075(SIM): 2-Chlorophenol	95-57-8	3 mg/kg	113	65	123
		EP075(SIM): 2-Nitrophenol	88-75-5	3 mg/kg	73.9	40	134
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	3 mg/kg	112	56	122
		EP075(SIM): Pentachlorophenol	87-86-5	3 mg/kg	60.4	15	139

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1411682)							
EM1802479-004	Duplicate 3	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	98.8	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	119	52	148
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1411688)							
EM1802479-025	T5-09	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	106	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	115	52	148
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1419899)							
EM1802479-043	T11-07	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	117	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	126	52	148
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1411657)							
EM1802479-004	Duplicate 3	EP080: C6 - C9 Fraction	----	28 mg/kg	99.0	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1411661)							
EM1802479-025	T5-09	EP080: C6 - C9 Fraction	----	28 mg/kg	118	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1411683)							
EM1802479-004	Duplicate 3	EP071: C10 - C14 Fraction	----	806 mg/kg	94.6	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	98.0	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	95.8	64	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1411687)							
EM1802479-024	T5-08	EP071: C10 - C14 Fraction	----	806 mg/kg	96.6	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	103	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	103	64	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1413291)							
EM1802479-044	T11-08	EP080: C6 - C9 Fraction	----	28 mg/kg	83.0	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1419900)							
EM1802479-044	T11-08	EP071: C10 - C14 Fraction	----	806 mg/kg	102	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	103	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	98.8	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1411657)							
EM1802479-004	Duplicate 3	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	97.8	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1411661)							
EM1802479-025	T5-09	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	117	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1411683)							
EM1802479-004	Duplicate 3	EP071: >C10 - C16 Fraction	----	1160 mg/kg	93.4	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	97.1	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	92.4	44	126
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1411687)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1411687) - continued							
EM1802479-024	T5-08	EP071: >C10 - C16 Fraction	----	1160 mg/kg	98.9	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	104	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	104	44	126
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1413291)							
EM1802479-044	T11-08	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	81.0	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1419900)							
EM1802479-044	T11-08	EP071: >C10 - C16 Fraction	----	1160 mg/kg	100	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	102	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	98.7	44	126
EP080: BTEXN (QCLot: 1411657)							
EM1802479-004	Duplicate 3	EP080: Benzene	71-43-2	2 mg/kg	101	50	136
		EP080: Toluene	108-88-3	2 mg/kg	109	56	139
EP080: BTEXN (QCLot: 1411661)							
EM1802479-025	T5-09	EP080: Benzene	71-43-2	2 mg/kg	120	50	136
		EP080: Toluene	108-88-3	2 mg/kg	125	56	139
EP080: BTEXN (QCLot: 1413291)							
EM1802479-044	T11-08	EP080: Benzene	71-43-2	2 mg/kg	86.0	50	136
		EP080: Toluene	108-88-3	2 mg/kg	95.8	56	139
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 1419415)							
EB1803273-005	Anonymous	EP202: Mecoprop	93-65-2	0.1 mg/kg	60.5	60	140
		EP202: MCPA	94-74-6	0.1 mg/kg	91.4	57	143
		EP202: 2.4-D	94-75-7	0.1 mg/kg	79.4	68	139
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	63.0	51	145
		EP202: 2.4.5-T	93-76-5	0.1 mg/kg	78.4	57	142
		EP202: Picloram	1918-02-1	0.1 mg/kg	87.4	49	138
		EP202: Clopyralid	1702-17-6	0.1 mg/kg	61.3	49	149

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1413408)							
EM1802359-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	99.6	82	118
		EG020A-T: Beryllium	7440-41-7	1 mg/L	97.3	79	121
		EG020A-T: Barium	7440-39-3	1 mg/L	98.5	80	114
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	99.6	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	94.1	80	118
		EG020A-T: Cobalt	7440-48-4	1 mg/L	95.1	82	120

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1413408) - continued							
EM1802359-002	Anonymous	EG020A-T: Copper	7440-50-8	1 mg/L	95.2	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	91.1	83	121
		EG020A-T: Manganese	7439-96-5	1 mg/L	95.3	73	123
		EG020A-T: Nickel	7440-02-0	1 mg/L	98.2	80	118
		EG020A-T: Vanadium	7440-62-2	1 mg/L	95.7	81	119
		EG020A-T: Zinc	7440-66-6	1 mg/L	98.6	74	116
EG020T: Total Metals by ICP-MS (QCLot: 1413413)							
EM1802479-005	rinsate excavator	EG020A-T: Arsenic	7440-38-2	1 mg/L	97.0	82	118
		EG020A-T: Beryllium	7440-41-7	1 mg/L	102	79	121
		EG020A-T: Barium	7440-39-3	1 mg/L	94.0	80	114
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	106	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	98.4	80	118
		EG020A-T: Cobalt	7440-48-4	1 mg/L	93.5	82	120
		EG020A-T: Copper	7440-50-8	1 mg/L	96.1	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	92.8	83	121
		EG020A-T: Manganese	7439-96-5	1 mg/L	99.2	73	123
		EG020A-T: Nickel	7440-02-0	1 mg/L	97.7	80	118
		EG020A-T: Vanadium	7440-62-2	1 mg/L	99.8	81	119
		EG020A-T: Zinc	7440-66-6	1 mg/L	97.0	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1417107)							
EM1802394-004	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	98.2	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1412992)							
EM1802395-004	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	74.2	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1412992)							
EM1802395-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	71.6	44	122
EP080: BTEXN (QCLot: 1412992)							
EM1802395-004	Anonymous	EP080: Benzene	71-43-2	20 µg/L	92.8	68	130
		EP080: Toluene	108-88-3	20 µg/L	94.0	72	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1802479**	Page	: 1 of 16
Client	: **SEMF PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI	Date Samples Received	: 05-Feb-2018
Site	: ----	Issue Date	: 20-Feb-2018
Sampler	: FIONA KESERUE-PONTE	No. of samples received	: 44
Order number	: 4193.005	No. of samples analysed	: 44

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	EM1802626--003	Anonymous	**Phenanthrene**	85-01-8	48.5 %	0% - 20%	**RPD exceeds LOR based limits**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	EM1802626--003	Anonymous	**Fluoranthene**	206-44-0	47.0 %	0% - 20%	**RPD exceeds LOR based limits**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	EM1802626--003	Anonymous	**Pyrene**	129-00-0	47.4 %	0% - 20%	**RPD exceeds LOR based limits**
EP080/071: Total Petroleum Hydrocarbons	EM1802660--005	Anonymous	**C10 - C36 Fraction (sum)**	----	35.1 %	0% - 20%	**RPD exceeds LOR based limits**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	EM1802660--005	Anonymous	**>C10 - C40 Fraction (sum)**	----	34.3 %	0% - 20%	**RPD exceeds LOR based limits**
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EM1802479--025	T5-09	**Manganese**	7439-96-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EP080: BTEXN	EM1802475--023	Anonymous	**Ethylbenzene**	100-41-4	79.2 %	0% - 20%	**RPD exceeds LOR based limits**
EP080: BTEXN	EM1802475--023	Anonymous	**meta- & para-Xylene**	108-38-3 106-42-3	80.1 %	0% - 20%	**RPD exceeds LOR based limits**
EP080: BTEXN	EM1802475--023	Anonymous	**ortho-Xylene**	95-47-6	76.6 %	0% - 50%	**RPD exceeds LOR based limits**
EP080: BTEXN	EM1802475--023	Anonymous	**Naphthalene**	91-20-3	83.4 %	0% - 20%	**RPD exceeds LOR based limits**

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP202S: Phenoxyacetic Acid Herbicide Surrogate	EM1802479-006	Triplicate 5	**2.4-Dichlorophenyl Acetic Acid**	19719-28-9	15.8 %	45-139 %	**Recovery less than lower data quality objective**
EP202S: Phenoxyacetic Acid Herbicide Surrogate	EM1802479-028	T4-03	**2.4-Dichlorophenyl Acetic Acid**	19719-28-9	15.6 %	45-139 %	**Recovery less than lower data quality objective**
EP202S: Phenoxyacetic Acid Herbicide Surrogate	EM1802479-029	T4-04	**2.4-Dichlorophenyl Acetic Acid**	19719-28-9	13.6 %	45-139 %	**Recovery less than lower data quality objective**
EP202S: Phenoxyacetic Acid Herbicide Surrogate	EM1802479-035	T6-01	**2.4-Dichlorophenyl Acetic Acid**	19719-28-9	14.0 %	45-139 %	**Recovery less than lower data quality objective**
EP202S: Phenoxyacetic Acid Herbicide Surrogate	EM1802479-036	T6-02	**2.4-Dichlorophenyl Acetic Acid**	19719-28-9	14.3 %	45-139 %	**Recovery less than lower data quality objective**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP) - Continued					
TRH - Semivolatile Fraction	0	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
TRH - Semivolatile Fraction	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
Triplicate 3, Duplicate 3, Triplicate 5, T13-01, T13-02, T15-01, T15-02, T15-03, T15-04, T15-05, T15-06, T15-07, T15-08, T5-01, T5-02, T5-03, T5-04, T5-05, T5-06, T5-07, T5-08, T5-09, T4-01, T4-02, T4-03, T4-04, T4-05, T14-01, T14-02, T14-03, T14-04, T6-01, T6-02, T11-01, T11-02, T11-03, T11-04, T11-05, T11-06, T11-07, T11-08	**01-Feb-2018**	**----**	----	----	**08-Feb-2018**	15-Feb-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
Triplicate 3,	Duplicate 3,	**01-Feb-2018**	**07-Feb-2018**	31-Jul-2018	✓	**07-Feb-2018**	31-Jul-2018	✓
Triplicate 5,	T13-01,							
T13-02,	T15-01,							
T15-02,	T15-03,							
T15-04,	T15-05,							
T15-06,	T15-07,							
T15-08,	T5-01,							
T5-02,	T5-03,							
T5-04,	T5-05,							
T5-06,	T5-07,							
T5-08,	T5-09,							
T4-01,	T4-02,							
T4-03,	T4-04,							
T4-05,	T14-01,							
T14-02,	T14-03,							
T14-04								
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
Triplicate 3,	Duplicate 3,	**01-Feb-2018**	**07-Feb-2018**	01-Mar-2018	✓	**10-Feb-2018**	01-Mar-2018	✓
Triplicate 5,	T13-01,							
T13-02,	T15-01,							
T15-02,	T15-03,							
T15-04,	T15-05,							
T15-06,	T15-07,							
T15-08,	T5-01,							
T5-02,	T5-03,							
T5-04,	T5-05,							
T5-06,	T5-07,							
T5-08,	T5-09,							
T4-01,	T4-02,							
T4-03,	T4-04,							
T4-05,	T14-01,							
T14-02,	T14-03,							
T14-04								
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068)								
Triplicate 5,	T4-01,	**01-Feb-2018**	**08-Feb-2018**	15-Feb-2018	✓	**08-Feb-2018**	20-Mar-2018	✓
T4-02,	T4-03,							
T4-04,	T4-05,							
T6-01,	T6-02							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
Triplicate 5, T4-01, T4-02, T4-03, T4-04, T4-05, T6-01, T6-02	**01-Feb-2018**	**08-Feb-2018**	15-Feb-2018	✓	**08-Feb-2018**	20-Mar-2018	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM))							
Duplicate 3, Triplicate 5, T15-01, T15-02, T15-03, T15-04, T15-05, T15-06, T15-07, T15-08, T5-01, T5-02, T5-03, T5-04, T5-05, T5-06, T5-07, T5-08, T5-09, T4-01, T4-02, T4-03, T4-04, T4-05, T14-01, T14-02, T14-03, T14-04, T6-01, T6-02, T11-01, T11-02, T11-03, T11-04, T11-05	**01-Feb-2018**	**08-Feb-2018**	15-Feb-2018	✓	**08-Feb-2018**	20-Mar-2018	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
T11-06, T11-07, T11-08	**01-Feb-2018**	**08-Feb-2018**	15-Feb-2018	✓	**09-Feb-2018**	20-Mar-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
Triplicate 3, Duplicate 3, Triplicate 5, T13-01, T13-02, T15-01, T15-02, T15-03, T15-04, T15-05, T15-06, T15-07, T15-08, T5-01, T5-02, T5-03, T5-04, T5-05, T5-06, T5-07, T5-08, T5-09, T4-01, T4-02, T4-03, T4-04, T4-05, T14-01, T14-02, T14-03, T14-04, T6-01, T6-02, T11-01, T11-02, T11-03, T11-04, T11-05	**01-Feb-2018**	**08-Feb-2018**	15-Feb-2018	✓	**08-Feb-2018**	20-Mar-2018	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
T11-06, T11-07, T11-08	**01-Feb-2018**	**08-Feb-2018**	15-Feb-2018	✓	**09-Feb-2018**	20-Mar-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
T11-08	**01-Feb-2018**	**06-Feb-2018**	15-Feb-2018	✓	**08-Feb-2018**	15-Feb-2018	✓
Soil Glass Jar - Unpreserved (EP080)							
Triplicate 3, Duplicate 3, Triplicate 5, T13-01, T13-02, T15-01, T15-02, T15-03, T15-04, T15-05, T15-06, T15-07, T15-08, T5-01, T5-02, T5-03, T5-04, T5-05, T5-06, T5-07, T5-08, T5-09, T4-01, T4-02, T4-03, T4-04, T4-05, T14-01, T14-02, T14-03, T14-04, T6-01, T6-02, T11-01, T11-02, T11-03, T11-04, T11-05, T11-06, T11-07	**01-Feb-2018**	**06-Feb-2018**	15-Feb-2018	✓	**09-Feb-2018**	15-Feb-2018	✓
Soil Glass Jar - Unpreserved (EP071)							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons - Continued								
Triplicate 3,	Duplicate 3,	**01-Feb-2018**	**08-Feb-2018**	15-Feb-2018	✓	**08-Feb-2018**	20-Mar-2018	✓
Triplicate 5,	T13-01,							
T13-02,	T15-01,							
T15-02,	T15-03,							
T15-04,	T15-05,							
T15-06,	T15-07,							
T15-08,	T5-01,							
T5-02,	T5-03,							
T5-04,	T5-05,							
T5-06,	T5-07,							
T5-08,	T5-09,							
T4-01,	T4-02,							
T4-03,	T4-04,							
T4-05,	T14-01,							
T14-02,	T14-03,							
T14-04,	T6-01,							
T6-02,	T11-01,							
T11-02,	T11-03,							
T11-04,	T11-05							
Soil Glass Jar - Unpreserved (EP071)								
T11-06,	T11-07,	**01-Feb-2018**	**08-Feb-2018**	15-Feb-2018	✓	**09-Feb-2018**	20-Mar-2018	✓
T11-08								

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
T11-08	**01-Feb-2018**	**06-Feb-2018**	15-Feb-2018	✓	**08-Feb-2018**	15-Feb-2018	✓
Soil Glass Jar - Unpreserved (EP080)							
Triplicate 3, Duplicate 3, Triplicate 5, T13-01, T13-02, T15-01, T15-02, T15-03, T15-04, T15-05, T15-06, T15-07, T15-08, T5-01, T5-02, T5-03, T5-04, T5-05, T5-06, T5-07, T5-08, T5-09, T4-01, T4-02, T4-03, T4-04, T4-05, T14-01, T14-02, T14-03, T14-04, T6-01, T6-02, T11-01, T11-02, T11-03, T11-04, T11-05, T11-06, T11-07	**01-Feb-2018**	**06-Feb-2018**	15-Feb-2018	✓	**09-Feb-2018**	15-Feb-2018	✓
Soil Glass Jar - Unpreserved (EP071)							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
Triplicate 3,	Duplicate 3,	**01-Feb-2018**	**08-Feb-2018**	15-Feb-2018	✓	**08-Feb-2018**	20-Mar-2018	✓
Triplicate 5,	T13-01,							
T13-02,	T15-01,							
T15-02,	T15-03,							
T15-04,	T15-05,							
T15-06,	T15-07,							
T15-08,	T5-01,							
T5-02,	T5-03,							
T5-04,	T5-05,							
T5-06,	T5-07,							
T5-08,	T5-09,							
T4-01,	T4-02,							
T4-03,	T4-04,							
T4-05,	T14-01,							
T14-02,	T14-03,							
T14-04,	T6-01,							
T6-02,	T11-01,							
T11-02,	T11-03,							
T11-04,	T11-05							
Soil Glass Jar - Unpreserved (EP071)								
T11-06,	T11-07,	**01-Feb-2018**	**08-Feb-2018**	15-Feb-2018	✓	**09-Feb-2018**	20-Mar-2018	✓
T11-08								

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
T11-08		**01-Feb-2018**	**06-Feb-2018**	15-Feb-2018	✓	**08-Feb-2018**	15-Feb-2018	✓
Soil Glass Jar - Unpreserved (EP080)								
Triplicate 3,	Duplicate 3,	**01-Feb-2018**	**06-Feb-2018**	15-Feb-2018	✓	**09-Feb-2018**	15-Feb-2018	✓
Triplicate 5,	T13-01,							
T13-02,	T15-01,							
T15-02,	T15-03,							
T15-04,	T15-05,							
T15-06,	T15-07,							
T15-08,	T5-01,							
T5-02,	T5-03,							
T5-04,	T5-05,							
T5-06,	T5-07,							
T5-08,	T5-09,							
T4-01,	T4-02,							
T4-03,	T4-04,							
T4-05,	T14-01,							
T14-02,	T14-03,							
T14-04,	T6-01,							
T6-02,	T11-01,							
T11-02,	T11-03,							
T11-04,	T11-05,							
T11-06,	T11-07							
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
Soil Glass Jar - Unpreserved (EP202)								
Triplicate 5,	T4-01,	**01-Feb-2018**	**15-Feb-2018**	15-Feb-2018	✓	**15-Feb-2018**	27-Mar-2018	✓
T4-02,	T4-03,							
T4-04,	T4-05,							
T6-01,	T6-02							

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS								
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG020A-T)								
Rinsate auger,	rinsate excavator	**01-Feb-2018**	**06-Feb-2018**	31-Jul-2018	✓	**06-Feb-2018**	31-Jul-2018	✓
EG035T: Total Recoverable Mercury by FIMS								
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)								
Rinsate auger,	rinsate excavator	**01-Feb-2018**	**----**	----	----	**12-Feb-2018**	01-Mar-2018	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071)								
Rinsate auger,	rinsate excavator	**01-Feb-2018**	**06-Feb-2018**	08-Feb-2018	✓	**07-Feb-2018**	18-Mar-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
Rinsate auger, rinsate excavator	TB2,	**01-Feb-2018**	**09-Feb-2018**	15-Feb-2018	✓	**09-Feb-2018**	15-Feb-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071)								
Rinsate auger,	rinsate excavator	**01-Feb-2018**	**06-Feb-2018**	08-Feb-2018	✓	**07-Feb-2018**	18-Mar-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
Rinsate auger, rinsate excavator	TB2,	**01-Feb-2018**	**09-Feb-2018**	15-Feb-2018	✓	**09-Feb-2018**	15-Feb-2018	✓
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
Rinsate auger, rinsate excavator	TB2,	**01-Feb-2018**	**09-Feb-2018**	15-Feb-2018	✓	**09-Feb-2018**	15-Feb-2018	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	5	41	**12.20**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	5	44	**11.36**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	8	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	6	50	**12.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	6	60	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	3	44	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	8	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	3	50	**6.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	60	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	3	44	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	8	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	3	50	**6.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	60	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	3	44	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	3	50	**6.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	60	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	3	23	**13.04**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	SOIL	In house: LCMS (Electrospray in negative mode). Residues of acid herbicides are extracted from soil samples under the alkaline condition. An aliquot of the alkaline aqueous phase is taken and acidified before a SPE cleanup. After eluting off from the SPE cartridge, residues of acid herbicides are dissolved in HPLC mobile phase prior to instrument analysis.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	* EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Extraction for Phenoxy Acid Herbicides in Soils.	EP202-PR	SOIL	In-House: Alkaline extract followed by SPE clean up of acidified portion of the sample extract.
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	* EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1802495**	Page	: 1 of 12
Client	: **SEMF PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI	Date Samples Received	: 05-Feb-2018
Order number	: 4193.005	Date Analysis Commenced	: 06-Feb-2018
C-O-C number	: ----	Issue Date	: 12-Feb-2018
Sampler	: FIONA KESERUE-PONTE		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 22		
No. of samples analysed	: 22		

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Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1417734)									
EM1802475-016	Anonymous	EA055: Moisture Content	----	1	%	14.3	13.5	5.92	0% - 50%
EM1802495-004	T2-WALL4	EA055: Moisture Content	----	1	%	23.8	22.8	4.23	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1417735)									
EM1802495-014	T3-WALL 4	EA055: Moisture Content	----	1	%	9.6	10.2	5.21	0% - 50%
EM1802534-009	Anonymous	EA055: Moisture Content	----	1	%	4.3	4.5	3.90	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1416458)									
EM1802495-001	T2-WALL1	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	30	30	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	7	6	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	7	9	26.3	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	4	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	7	17.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	6	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	222	233	4.56	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	49	49	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	11	10	11.1	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EM1802541-018	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	60	70	19.4	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	19	26	31.4	0% - 50%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005T: Total Metals by ICP-AES (QC Lot: 1416458) - continued									
EM1802541-018	Anonymous	EG005T: Cobalt	7440-48-4	2	mg/kg	5	5	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	9	13	38.3	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	10	13	30.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	14	10	29.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	209	218	4.19	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	27	31	13.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	16	18	11.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1416459)									
EM1802495-001	T2-WALL1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1802541-018	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 1415003)									
EM1802495-001	T2-WALL1	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EM1802495-011	T3-WALL 1	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1415003)									
EM1802495-001	T2-WALL1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1415003) - continued									
EM1802495-001	T2-WALL1	EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1802495-011	T3-WALL 1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1413291)									
EM1802475-021	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	76	53	36.3	No Limit
EM1802495-009	T3 STOCKPILE 1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1415004)									
EM1802495-001	T2-WALL1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1415004) - continued									
EM1802495-001	T2-WALL1	EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1802495-011	T3-WALL 1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1413291)									
EM1802475-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	100	72	32.7	No Limit
EM1802495-009	T3 STOCKPILE 1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1415004)									
EM1802495-001	T2-WALL1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1802495-011	T3-WALL 1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 1413291)									
EM1802475-021	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	0.7	<0.5	28.3	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	3.6	2.3	44.8	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	1.4	0.9	43.5	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1802495-009	T3 STOCKPILE 1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 1413413)									
EM1802479-005	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0002	<0.0001	75.4	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.027	0.031	12.4	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 1413413) - continued									
EM1802479-005	Anonymous	EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.007	0.006	16.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.005	0.005	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.017	0.017	0.00	0% - 50%
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.056	0.055	0.00	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.029	0.026	10.2	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1417107)									
EM1802213-034	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1802495-021	TANK WATER	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1412992)									
EM1802394-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1802475-023	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	27300	19600	32.6	0% - 50%
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1412992)									
EM1802394-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1802475-023	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	37700	26900	33.3	0% - 50%
EP080: BTEXN (QC Lot: 1412992)									
EM1802394-004	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1802475-023	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<10	<10	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	12	10	13.7	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	1120	# 487	79.2	0% - 20%
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	861	# 368	80.1	0% - 20%
		EP080: ortho-Xylene	95-47-6	2	µg/L	140	# 63	76.6	0% - 50%
		EP080: Naphthalene	91-20-3	5	µg/L	1450	# 596	83.4	0% - 20%

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1416458)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	79.7	79	113
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	84.7	79	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	97.2	85	120
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	91.5	82	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	85.6	85	109
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	87.1	83	109
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	84.8	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	85.8	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	82.5	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	84.4	82	107
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	98.7	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	100	93	109
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	92.0	80	109
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	98.4	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1416459)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	84.5	77	104
EP075(SIM)A: Phenolic Compounds (QCLot: 1415003)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	3 mg/kg	108	70	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	3 mg/kg	104	74	128
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	3 mg/kg	103	76	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	6 mg/kg	104	70	128
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	3 mg/kg	89.9	56	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	3 mg/kg	93.8	70	122
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	3 mg/kg	96.0	70	121
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	3 mg/kg	103	70	126
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	3 mg/kg	97.6	67	120
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	3 mg/kg	88.5	63	121
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	3 mg/kg	98.7	71	133
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	6 mg/kg	55.3	20	110
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1415003)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	110	75	131
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	98.3	70	132
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	105	80	128
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	101	70	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1415003) - continued								
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	106	80	128
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	97.3	72	126
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	106	70	128
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	116	80	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	100	70	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	115	80	126
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	96.0	71	124
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	105	75	125
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	91.1	70	125
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	93.2	71	128
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	91.8	72	126
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	94.4	68	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1413291)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	104	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1415004)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	100	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	104	84	115
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	102	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1413291)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	103	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1415004)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	103	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	103	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	102	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN (QCLot: 1413291)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	96.8	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	104	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	102	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	114	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	114	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	97.1	66	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1413413)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	90	110
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	99.7	88	113
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	95.0	88	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	107	86	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.9	87	109
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	100	88	113
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.8	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.8	88	109
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	102	88	111
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	99.7	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	97.4	85	113
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	104	88	112
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	99.4	87	113
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	108	88	118
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1417107)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	87.5	81	114
EP075(SIM)A: Phenolic Compounds (QCLot: 1413228)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	35.0	20	49
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	71.3	46	103
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	65.2	43	98
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	61.6	41	92
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	77.4	44	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	53.9	43	115
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	78.5	48	111
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	77.2	50	116
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	79.8	49	110
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	74.7	48	113
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	79.2	47	115
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	52.4	48	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1413228)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	76.3	48	110
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	83.6	49	124
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	85.7	53	117
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	88.7	54	118
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	92.1	57	119
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	2.5 µg/L	82.3	51	113
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	93.9	59	123
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	94.7	58	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1413228) - continued								
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	88.3	52	126
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	94.2	55	123
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	96.6	52	131
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	96.1	57	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	88.8	56	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	92.4	53	123
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	91.9	53	125
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	92.6	53	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1412992)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	85.7	68	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1413229)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	3368 µg/L	91.4	58	134
EP071: C15 - C28 Fraction	----	100	µg/L	<100	14735 µg/L	98.1	60	133
EP071: C29 - C36 Fraction	----	50	µg/L	<50	7856 µg/L	95.5	54	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1412992)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	82.7	66	123
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1413229)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	5225 µg/L	95.3	58	122
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	19994 µg/L	95.3	56	132
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1449 µg/L	106	58	137
EP080: BTEXN (QCLot: 1412992)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	93.6	74	123
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	96.6	77	128
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	98.5	73	126
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	101	72	131
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	102	74	131
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	101	74	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1416458)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1416458) - continued							
EM1802495-002	T2-WALL2	EG005T: Arsenic	7440-38-2	50 mg/kg	91.1	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	101	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	93.7	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	84.2	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	87.9	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	89.2	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	90.1	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	98.5	68	136
		EG005T: Nickel	7440-02-0	50 mg/kg	86.9	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	84.4	71	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	90.2	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	89.2	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1416459)							
EM1802495-002	T2-WALL2	EG035T: Mercury	7439-97-6	5 mg/kg	88.0	76	116
EP075(SIM)A: Phenolic Compounds (QCLot: 1415003)							
EM1802495-002	T2-WALL2	EP075(SIM): Phenol	108-95-2	3 mg/kg	110	63	117
		EP075(SIM): 2-Chlorophenol	95-57-8	3 mg/kg	103	65	123
		EP075(SIM): 2-Nitrophenol	88-75-5	3 mg/kg	83.6	40	134
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	3 mg/kg	95.6	56	122
		EP075(SIM): Pentachlorophenol	87-86-5	3 mg/kg	55.0	15	139
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1415003)							
EM1802495-002	T2-WALL2	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	104	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	115	52	148
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1413291)							
EM1802479-044	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	83.0	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1415004)							
EM1802495-003	T2-WALL3	EP071: C10 - C14 Fraction	----	806 mg/kg	92.8	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	96.4	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	94.2	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1413291)							
EM1802479-044	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	81.0	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1415004)							
EM1802495-003	T2-WALL3	EP071: >C10 - C16 Fraction	----	1160 mg/kg	95.2	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	95.6	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	95.0	44	126
EP080: BTEXN (QCLot: 1413291)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 1413291) - continued							
EM1802479-044	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	86.0	50	136
		EP080: Toluene	108-88-3	2 mg/kg	95.8	56	139

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1413413)							
EM1802479-005	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	97.0	82	118
		EG020A-T: Beryllium	7440-41-7	1 mg/L	102	79	121
		EG020A-T: Barium	7440-39-3	1 mg/L	94.0	80	114
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	106	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	98.4	80	118
		EG020A-T: Cobalt	7440-48-4	1 mg/L	93.5	82	120
		EG020A-T: Copper	7440-50-8	1 mg/L	96.1	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	92.8	83	121
		EG020A-T: Manganese	7439-96-5	1 mg/L	99.2	73	123
		EG020A-T: Nickel	7440-02-0	1 mg/L	97.7	80	118
		EG020A-T: Vanadium	7440-62-2	1 mg/L	99.8	81	119
		EG020A-T: Zinc	7440-66-6	1 mg/L	97.0	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1417107)							
EM1802394-004	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	98.2	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1412992)							
EM1802395-004	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	74.2	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1412992)							
EM1802395-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	71.6	44	122
EP080: BTEXN (QCLot: 1412992)							
EM1802395-004	Anonymous	EP080: Benzene	71-43-2	20 µg/L	92.8	68	130
		EP080: Toluene	108-88-3	20 µg/L	94.0	72	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1802495**	Page	: 1 of 10
Client	: **SEMF PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI	Date Samples Received	: 05-Feb-2018
Site	: ----	Issue Date	: 12-Feb-2018
Sampler	: FIONA KESERUE-PONTE	No. of samples received	: 22
Order number	: 4193.005	No. of samples analysed	: 22

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EP080: BTEXN	EM1802475--023	Anonymous	**Ethylbenzene**	100-41-4	79.2 %	0% - 20%	**RPD exceeds LOR based limits**
EP080: BTEXN	EM1802475--023	Anonymous	**meta- & para-Xylene**	108-38-3 106-42-3	80.1 %	0% - 20%	**RPD exceeds LOR based limits**
EP080: BTEXN	EM1802475--023	Anonymous	**ortho-Xylene**	95-47-6	76.6 %	0% - 50%	**RPD exceeds LOR based limits**
EP080: BTEXN	EM1802475--023	Anonymous	**Naphthalene**	91-20-3	83.4 %	0% - 20%	**RPD exceeds LOR based limits**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
T2-WALL1,	T2-WALL2,	**02-Feb-2018**	**----**	----	----	**07-Feb-2018**	16-Feb-2018	✓
T2-WALL3,	T2-WALL4,							
T2-BASE,	T3-FUEL LINE,							
T3-BOWSER BASE,	BACKFILL SAND,							
T3 STOCKPILE 1,	T3 STOCKPILE 2,							
T3-WALL 1,	T3-WALL 2,							
T3-WALL 3,	T3-WALL 4,							
T3-BASE,	T3 WASTE SOIL,							
TRIPLICATE 7,	DUPLICATE 1 (2/2/18)							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
T2-WALL1,	T2-WALL2,	**02-Feb-2018**	**07-Feb-2018**	01-Aug-2018	✓	**07-Feb-2018**	01-Aug-2018	✓
T2-WALL3,	T2-WALL4,							
T2-BASE,	TRIPLICATE 7							
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
T2-WALL1,	T2-WALL2,	**02-Feb-2018**	**07-Feb-2018**	02-Mar-2018	✓	**10-Feb-2018**	02-Mar-2018	✓
T2-WALL3,	T2-WALL4,							
T2-BASE,	TRIPLICATE 7							
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM))								
T3-FUEL LINE,	T3-BOWSER BASE,	**02-Feb-2018**	**07-Feb-2018**	16-Feb-2018	✓	**07-Feb-2018**	19-Mar-2018	✓
BACKFILL SAND,	T3 STOCKPILE 1,							
T3 STOCKPILE 2,	T3-WALL 1,							
T3-WALL 2,	T3-WALL 3,							
T3-WALL 4,	T3-BASE,							
T3 WASTE SOIL,	DUPLICATE 1 (2/2/18)							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
T2-WALL1,	T2-WALL2,	**02-Feb-2018**	**07-Feb-2018**	16-Feb-2018	✓	**07-Feb-2018**	19-Mar-2018	✓
T2-WALL3,	T2-WALL4,							
T2-BASE,	T3-FUEL LINE,							
T3-BOWSER BASE,	BACKFILL SAND,							
T3 STOCKPILE 1,	T3 STOCKPILE 2,							
T3-WALL 1,	T3-WALL 2,							
T3-WALL 3,	T3-WALL 4,							
T3-BASE,	T3 WASTE SOIL,							
TRIPLICATE 7,	DUPLICATE 1 (2/2/18)							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
T2-WALL1, T2-WALL2, T2-WALL3, T2-WALL4, T2-BASE, T3-FUEL LINE, T3-BOWSER BASE, BACKFILL SAND, T3 STOCKPILE 1, T3 STOCKPILE 2, T3-WALL 1, T3-WALL 2, T3-WALL 3, T3-WALL 4, T3-BASE, T3 WASTE SOIL, TRIPLICATE 7, DUPLICATE 1 (2/2/18)	**02-Feb-2018**	**06-Feb-2018**	16-Feb-2018	✓	**08-Feb-2018**	16-Feb-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
T2-WALL1, T2-WALL2, T2-WALL3, T2-WALL4, T2-BASE, T3-FUEL LINE, T3-BOWSER BASE, BACKFILL SAND, T3 STOCKPILE 1, T3 STOCKPILE 2, T3-WALL 1, T3-WALL 2, T3-WALL 3, T3-WALL 4, T3-BASE, T3 WASTE SOIL, TRIPLICATE 7, DUPLICATE 1 (2/2/18)	**02-Feb-2018**	**07-Feb-2018**	16-Feb-2018	✓	**07-Feb-2018**	19-Mar-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
T2-WALL1, T2-WALL2, T2-WALL3, T2-WALL4, T2-BASE, T3-FUEL LINE, T3-BOWSER BASE, BACKFILL SAND, T3 STOCKPILE 1, T3 STOCKPILE 2, T3-WALL 1, T3-WALL 2, T3-WALL 3, T3-WALL 4, T3-BASE, T3 WASTE SOIL, TRIPLICATE 7, DUPLICATE 1 (2/2/18)	**02-Feb-2018**	**06-Feb-2018**	16-Feb-2018	✓	**08-Feb-2018**	16-Feb-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
T2-WALL1, T2-WALL2, T2-WALL3, T2-WALL4, T2-BASE, T3-FUEL LINE, T3-BOWSER BASE, BACKFILL SAND, T3 STOCKPILE 1, T3 STOCKPILE 2, T3-WALL 1, T3-WALL 2, T3-WALL 3, T3-WALL 4, T3-BASE, T3 WASTE SOIL, TRIPLICATE 7, DUPLICATE 1 (2/2/18)	**02-Feb-2018**	**07-Feb-2018**	16-Feb-2018	✓	**07-Feb-2018**	19-Mar-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
T2-WALL1, T2-WALL2, T2-WALL3, T2-WALL4, T2-BASE, T3-FUEL LINE, T3-BOWSER BASE, BACKFILL SAND, T3 STOCKPILE 1, T3 STOCKPILE 2, T3-WALL 1, T3-WALL 2, T3-WALL 3, T3-WALL 4, T3-BASE, T3 WASTE SOIL, TRIPLICATE 7, DUPLICATE 1 (2/2/18)	**02-Feb-2018**	**06-Feb-2018**	16-Feb-2018	✓	**08-Feb-2018**	16-Feb-2018	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG020A-T)							
TANK WATER	**02-Feb-2018**	**06-Feb-2018**	01-Aug-2018	✓	**06-Feb-2018**	01-Aug-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)							
TANK WATER	**02-Feb-2018**	**----**	----	----	**12-Feb-2018**	02-Mar-2018	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
RINSATE EXCAVATOR BUCKET, RINSATE TROWEL (2/2/2018), TANK WATER	**02-Feb-2018**	**06-Feb-2018**	09-Feb-2018	✓	**07-Feb-2018**	18-Mar-2018	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
RINSATE EXCAVATOR BUCKET, RINSATE TROWEL (2/2/2018), TANK WATER	**02-Feb-2018**	**06-Feb-2018**	09-Feb-2018	✓	**07-Feb-2018**	18-Mar-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
RINSATE EXCAVATOR BUCKET, RINSATE TROWEL (2/2/2018), TANK WATER	**02-Feb-2018**	**06-Feb-2018**	09-Feb-2018	✓	**07-Feb-2018**	18-Mar-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
RINSATE EXCAVATOR BUCKET, RINSATE TROWEL (2/2/2018), TANK WATER, TRIP BLANK	**02-Feb-2018**	**09-Feb-2018**	16-Feb-2018	✓	**09-Feb-2018**	16-Feb-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
RINSATE EXCAVATOR BUCKET, RINSATE TROWEL (2/2/2018), TANK WATER	**02-Feb-2018**	**06-Feb-2018**	09-Feb-2018	✓	**07-Feb-2018**	18-Mar-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
RINSATE EXCAVATOR BUCKET, RINSATE TROWEL (2/2/2018), TANK WATER, TRIP BLANK	**02-Feb-2018**	**09-Feb-2018**	16-Feb-2018	✓	**09-Feb-2018**	16-Feb-2018	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
RINSATE EXCAVATOR BUCKET, RINSATE TROWEL (2/2/2018), TANK WATER, TRIP BLANK	**02-Feb-2018**	**09-Feb-2018**	16-Feb-2018	✓	**09-Feb-2018**	16-Feb-2018	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	8	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	8	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1803452**	Page	: 1 of 17
Client	: **SEMF PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Outlands DSI	Date Samples Received	: 22-Feb-2018
Order number	: 4193.005	Date Analysis Commenced	: 23-Feb-2018
C-O-C number	: ----	Issue Date	: 28-Feb-2018
Sampler	: FIONA KESERUE-PONTE		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 34		
No. of samples analysed	: 34		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1452199)									
EM1803414-001	Anonymous	EA055: Moisture Content	----	1	%	6.2	6.3	2.29	No Limit
EM1803452-012	T1-05	EA055: Moisture Content	----	1	%	18.4	18.2	1.48	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1452200)									
EM1803452-022	DT1	EA055: Moisture Content	----	1	%	12.5	13.0	3.86	0% - 50%
EM1803452-032	B12-3	EA055: Moisture Content	----	1	%	17.9	18.3	2.49	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 1452243)									
EM1803452-005	triplicate 3	EG005T: Lead	7439-92-1	5	mg/kg	35	32	7.58	No Limit
EM1803405-001	Anonymous	EG005T: Lead	7439-92-1	5	mg/kg	926	931	0.620	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 1452245)									
EM1803452-016	T1-09	EG005T: Lead	7439-92-1	5	mg/kg	45	45	0.00	No Limit
EM1803452-025	A3-1	EG005T: Lead	7439-92-1	5	mg/kg	118	116	1.21	0% - 20%
EP075(SIM)A: Phenolic Compounds (QC Lot: 1452209)									
EM1803452-004	triplicate 1	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 1452209) - continued									
EM1803452-014	T1-07	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 1452213)									
EM1803452-026	A3-2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EM1803344-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1452209)									
EM1803452-004	triplicate 1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1452209) - continued									
EM1803452-004	triplicate 1	EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1803452-014	T1-07	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1452213)									
EM1803452-026	A3-2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1452213) - continued									
EM1803452-026	A3-2	EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1803344-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1450371)									
EM1803452-004	triplicate 1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1803452-014	T1-07	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1450374)									
EM1803452-024	A1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1803452-034	B20	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1452210)									
EM1803452-004	triplicate 1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1803452-014	T1-07	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1452210) - continued									
EM1803452-014	T1-07	EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1452212)									
EM1803452-026	A3-2	EP071: C15 - C28 Fraction	----	100	mg/kg	270	300	13.3	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	370	260	33.9	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	50	90	48.1	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	690	650	5.97	0% - 50%
EM1803344-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1450371)									
EM1803452-004	triplicate 1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1803452-014	T1-07	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1450374)									
EM1803452-024	A1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1803452-034	B20	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1452210)									
EM1803452-004	triplicate 1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1803452-014	T1-07	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1452212)									
EM1803452-026	A3-2	EP071: >C16 - C34 Fraction	----	100	mg/kg	520	460	12.8	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	220	150	34.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	70	130	54.3	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	810	740	9.03	0% - 50%
EM1803344-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 1450371)									
EM1803452-004	triplicate 1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 1450371) - continued									
EM1803452-004	triplicate 1	EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1803452-014	T1-07	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP080: BTEXN (QC Lot: 1450374)									
EM1803452-024	A1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1803452-034	B20	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 1452003)									
EM1803289-034	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.002	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 1452003) - continued									
EM1803289-034	Anonymous	EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EM1803470-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.002	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1458981)									
EM1802462-003	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1803485-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1451791)									
EM1803452-001	TP6-water	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1803464-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	20	30	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1451791)									
EM1803452-001	TP6-water	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1803464-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	20	20	0.00	No Limit
EP080: BTEXN (QC Lot: 1451791)									
EM1803452-001	TP6-water	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1803464-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	3	3	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 1451791) - continued									
EM1803464-007	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1452243)								
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	83.2	78	106
EG005T: Total Metals by ICP-AES (QCLot: 1452245)								
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	84.0	78	106
EP075(SIM)A: Phenolic Compounds (QCLot: 1452209)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	3 mg/kg	107	70	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	3 mg/kg	106	74	128
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	3 mg/kg	101	76	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	6 mg/kg	98.9	70	128
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	3 mg/kg	93.8	56	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	3 mg/kg	91.7	70	122
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	3 mg/kg	96.1	70	121
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	3 mg/kg	104	70	126
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	3 mg/kg	98.5	67	120
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	3 mg/kg	93.7	63	121
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	3 mg/kg	99.2	71	133
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	6 mg/kg	62.1	20	110
EP075(SIM)A: Phenolic Compounds (QCLot: 1452213)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	3 mg/kg	105	70	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	3 mg/kg	107	74	128
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	3 mg/kg	103	76	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	6 mg/kg	106	70	128
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	3 mg/kg	88.7	56	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	3 mg/kg	95.9	70	122
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	3 mg/kg	101	70	121
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	3 mg/kg	115	70	126
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	3 mg/kg	103	67	120
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	3 mg/kg	105	63	121
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	3 mg/kg	114	71	133
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	6 mg/kg	70.4	20	110
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1452209)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	107	75	131
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	100	70	132
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	110	80	128
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	109	70	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1452209) - continued								
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	115	80	128
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.8 mg/kg	115	72	126
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	114	70	128
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	121	80	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	104	70	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	116	80	126
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	102	71	124
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	116	75	125
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	99.3	70	125
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	103	71	128
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	101	72	126
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	102	68	127
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1452213)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	113	75	131
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	105	70	132
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	116	80	128
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	118	70	128
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	112	80	128
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	3 mg/kg	73.2	72	126
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	120	70	128
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	118	80	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	111	70	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	111	80	126
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	112	71	124
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	113	75	125
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	109	70	125
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	116	71	128
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	118	72	126
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	116	68	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1450371)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	110	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1450374)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	92.5	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1452210)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	102	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	107	84	115

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1452210) - continued								
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	103	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1452212)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	106	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	107	84	115
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	103	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1450371)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	107	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1450374)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	90.4	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1452210)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	103	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	107	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	103	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1452212)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	106	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	108	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	101	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN (QCLot: 1450371)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	106	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	111	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	109	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	114	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	110	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	85.9	66	130
EP080: BTEXN (QCLot: 1450374)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	90.9	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	93.9	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	91.8	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	106	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	104	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	91.5	66	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1452003)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	106	90	110
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	99.9	88	113
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	104	88	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	108	86	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.0	87	109
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	101	88	113
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	102	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	103	88	109
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	102	88	111
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	101	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	99.1	85	113
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	102	88	112
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	106	87	113
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	108	88	118
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1458981)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	89.1	81	114
EP075(SIM)A: Phenolic Compounds (QCLot: 1452053)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	41.8	20	49
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	88.8	46	103
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	84.4	43	98
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	77.2	41	92
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	95.6	44	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	70.5	43	115
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	102	48	111
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	101	50	116
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	102	49	110
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	111	48	113
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	97.6	47	115
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	102	48	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1452053)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	96.4	48	110
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	107	49	124
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	102	53	117
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	108	54	118
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	94.3	57	119
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	2.5 µg/L	90.9	51	113
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	98.4	59	123
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	102	58	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1452053) - continued								
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	97.1	52	126
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	99.0	55	123
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	106	52	131
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	102	57	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	98.4	56	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	100	53	123
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	101	53	125
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	101	53	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1451791)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	99.4	68	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1452054)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	3368 µg/L	124	58	134
EP071: C15 - C28 Fraction	----	100	µg/L	<100	14735 µg/L	126	60	133
EP071: C29 - C36 Fraction	----	50	µg/L	<50	7856 µg/L	118	54	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1451791)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	101	66	123
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1452054)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	5225 µg/L	120	58	122
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	19994 µg/L	120	56	132
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1449 µg/L	123	58	137
EP080: BTEXN (QCLot: 1451791)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	99.9	74	123
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	99.7	77	128
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	104	73	126
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	102	72	131
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	107	74	131
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	96.8	74	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1452243)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1452243) - continued							
EM1803405-002	Anonymous	EG005T: Lead	7439-92-1	50 mg/kg	# Not Determined	76	124
EG005T: Total Metals by ICP-AES (QCLot: 1452245)							
EM1803452-017	T1-10	EG005T: Lead	7439-92-1	50 mg/kg	97.2	76	124
EP075(SIM)A: Phenolic Compounds (QCLot: 1452209)							
EM1803452-006	duplicate 1	EP075(SIM): Phenol	108-95-2	3 mg/kg	94.0	63	117
		EP075(SIM): 2-Chlorophenol	95-57-8	3 mg/kg	92.2	65	123
		EP075(SIM): 2-Nitrophenol	88-75-5	3 mg/kg	73.1	40	134
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	3 mg/kg	69.2	56	122
		EP075(SIM): Pentachlorophenol	87-86-5	3 mg/kg	62.7	15	139
EP075(SIM)A: Phenolic Compounds (QCLot: 1452213)							
EM1803344-005	Anonymous	EP075(SIM): Phenol	108-95-2	3 mg/kg	110	63	117
		EP075(SIM): 2-Chlorophenol	95-57-8	3 mg/kg	117	65	123
		EP075(SIM): 2-Nitrophenol	88-75-5	3 mg/kg	85.9	40	134
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	3 mg/kg	88.7	56	122
		EP075(SIM): Pentachlorophenol	87-86-5	3 mg/kg	42.2	15	139
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1452209)							
EM1803452-006	duplicate 1	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	93.3	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	94.6	52	148
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1452213)							
EM1803344-005	Anonymous	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	106	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	127	52	148
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1450371)							
EM1803452-005	triplicate 3	EP080: C6 - C9 Fraction	----	28 mg/kg	83.4	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1450374)							
EM1803452-025	A3-1	EP080: C6 - C9 Fraction	----	28 mg/kg	68.4	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1452210)							
EM1803452-005	triplicate 3	EP071: C10 - C14 Fraction	----	806 mg/kg	105	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	109	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	108	64	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1452212)							
EM1803344-003	Anonymous	EP071: C10 - C14 Fraction	----	806 mg/kg	105	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	109	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	105	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1450371)							
EM1803452-005	triplicate 3	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	79.0	39	129

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1450374)							
EM1803452-025	A3-1	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	69.2	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1452210)							
EM1803452-005	triplicate 3	EP071: >C10 - C16 Fraction	----	1160 mg/kg	108	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	109	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	101	44	126
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1452212)							
EM1803344-003	Anonymous	EP071: >C10 - C16 Fraction	----	1160 mg/kg	106	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	110	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	102	44	126
EP080: BTEXN (QCLot: 1450371)							
EM1803452-005	triplicate 3	EP080: Benzene	71-43-2	2 mg/kg	89.9	50	136
		EP080: Toluene	108-88-3	2 mg/kg	94.2	56	139
EP080: BTEXN (QCLot: 1450374)							
EM1803452-025	A3-1	EP080: Benzene	71-43-2	2 mg/kg	86.1	50	136
		EP080: Toluene	108-88-3	2 mg/kg	89.8	56	139

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 1452003)							
EM1803289-034	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	110	82	118
		EG020A-T: Beryllium	7440-41-7	1 mg/L	105	79	121
		EG020A-T: Barium	7440-39-3	1 mg/L	110	80	114
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	112	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	106	80	118
		EG020A-T: Cobalt	7440-48-4	1 mg/L	104	82	120
		EG020A-T: Copper	7440-50-8	1 mg/L	106	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	105	83	121
		EG020A-T: Manganese	7439-96-5	1 mg/L	106	73	123
		EG020A-T: Nickel	7440-02-0	1 mg/L	107	80	118
		EG020A-T: Vanadium	7440-62-2	1 mg/L	106	81	119
		EG020A-T: Zinc	7440-66-6	1 mg/L	104	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1458981)							
EM1802462-004	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	92.4	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1451791)							
EM1803452-002	T3-rainwater	EP080: C6 - C9 Fraction	----	280 µg/L	85.8	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1451791)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1451791) - continued							
EM1803452-002	T3-rainwater	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	85.0	44	122
EP080: BTEXN (QCLot: 1451791)							
EM1803452-002	T3-rainwater	EP080: Benzene	71-43-2	20 µg/L	96.4	68	130
		EP080: Toluene	108-88-3	20 µg/L	98.2	72	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1803452**	Page	: 1 of 12
Client	: **SEMF PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Telephone	: +61-3-8549 9630
Project	: Outlands DSI	Date Samples Received	: 22-Feb-2018
Site	: ----	Issue Date	: 28-Feb-2018
Sampler	: FIONA KESERUE-PONTE	No. of samples received	: 34
Order number	: 4193.005	No. of samples analysed	: 34

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EM1803405--002	Anonymous	**Lead**	7439-92-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	17	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	20	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	17	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	20	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method	***Sample Date***	*Extraction / Preparation*			*Analysis*		
Container / *Client Sample ID(s)*		***Date extracted***	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C) - Continued							
triplicate 1, triplicate 3, duplicate 1, duplicate 2, T1-01, T1-02, T1-03, T1-04, T1-05, T1-06, T1-07, T1-08, T1-09, T1-10, T1-11, T1-12, T1-13, T1-14, DT1, DT2, A1, A3-1, A3-2, A4, B1, B5, B12-1, B12-2, B12-3, B16, B20	**20-Feb-2018**	**----**	----	----	**23-Feb-2018**	06-Mar-2018	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
triplicate 1, triplicate 3, duplicate 1, duplicate 2, T1-01, T1-02, T1-03, T1-04, T1-05, T1-06, T1-07, T1-08, T1-09, T1-10, T1-11, T1-12, T1-13, T1-14, DT1, DT2, A1, A3-1, A3-2, A4, B1, B5, B12-1, B12-2, B12-3, B16, B20	**20-Feb-2018**	**23-Feb-2018**	19-Aug-2018	✓	**23-Feb-2018**	19-Aug-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM))							
triplicate 1, triplicate 3, duplicate 1, duplicate 2, T1-01, T1-02, T1-03, T1-04, T1-05, T1-06, T1-07, T1-08, T1-09, T1-10, T1-11, T1-12, T1-13, T1-14, DT1, DT2, A1, A3-1, A3-2, A4, B1, B5, B12-1, B12-2, B12-3, B16, B20	**20-Feb-2018**	**26-Feb-2018**	06-Mar-2018	✓	**26-Feb-2018**	07-Apr-2018	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
triplicate 1, triplicate 3, duplicate 1, duplicate 2, T1-01, T1-02, T1-03, T1-04, T1-05, T1-06, T1-07, T1-08, T1-09, T1-10, T1-11, T1-12, T1-13, T1-14, DT1, DT2, A1, A3-1, A3-2, A4, B1, B5, B12-1, B12-2, B12-3, B16, B20	**20-Feb-2018**	**26-Feb-2018**	06-Mar-2018	✓	**26-Feb-2018**	07-Apr-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
triplicate 1, triplicate 3, duplicate 1, duplicate 2, T1-01, T1-02, T1-03, T1-04, T1-05, T1-06, T1-07, T1-08, T1-09, T1-10, T1-11, T1-12, T1-13, T1-14, DT1, DT2, A1, A3-1, A3-2, A4, B1, B5, B12-1, B12-2, B12-3, B16, B20	**20-Feb-2018**	**23-Feb-2018**	06-Mar-2018	✓	**23-Feb-2018**	06-Mar-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
triplicate 1, triplicate 3, duplicate 1, duplicate 2, T1-01, T1-02, T1-03, T1-04, T1-05, T1-06, T1-07, T1-08, T1-09, T1-10, T1-11, T1-12, T1-13, T1-14, DT1, DT2, A1, A3-1, A3-2, A4, B1, B5, B12-1, B12-2, B12-3, B16, B20	**20-Feb-2018**	**26-Feb-2018**	06-Mar-2018	✓	**26-Feb-2018**	07-Apr-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
triplicate 1, triplicate 3, duplicate 1, duplicate 2, T1-01, T1-02, T1-03, T1-04, T1-05, T1-06, T1-07, T1-08, T1-09, T1-10, T1-11, T1-12, T1-13, T1-14, DT1, DT2, A1, A3-1, A3-2, A4, B1, B5, B12-1, B12-2, B12-3, B16, B20	**20-Feb-2018**	**23-Feb-2018**	06-Mar-2018	✓	**23-Feb-2018**	06-Mar-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
triplicate 1, triplicate 3, duplicate 1, duplicate 2, T1-01, T1-02, T1-03, T1-04, T1-05, T1-06, T1-07, T1-08, T1-09, T1-10, T1-11, T1-12, T1-13, T1-14, DT1, DT2, A1, A3-1, A3-2, A4, B1, B5, B12-1, B12-2, B12-3, B16, B20	**20-Feb-2018**	**26-Feb-2018**	06-Mar-2018	✓	**26-Feb-2018**	07-Apr-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
triplicate 1, triplicate 3, duplicate 1, duplicate 2, T1-01, T1-02, T1-03, T1-04, T1-05, T1-06, T1-07, T1-08, T1-09, T1-10, T1-11, T1-12, T1-13, T1-14, DT1, DT2, A1, A3-1, A3-2, A4, B1, B5, B12-1, B12-2, B12-3, B16, B20	**20-Feb-2018**	**23-Feb-2018**	06-Mar-2018	✓	**23-Feb-2018**	06-Mar-2018	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG020A-T)							
TP6-water, T3-rainwater	**20-Feb-2018**	**23-Feb-2018**	19-Aug-2018	✓	**23-Feb-2018**	19-Aug-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)							
TP6-water, T3-rainwater	**20-Feb-2018**	**----**	----	----	**27-Feb-2018**	20-Mar-2018	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
TP6-water, T3-rainwater	**20-Feb-2018**	**23-Feb-2018**	27-Feb-2018	✓	**26-Feb-2018**	04-Apr-2018	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
TP6-water, T3-rainwater	**20-Feb-2018**	**23-Feb-2018**	27-Feb-2018	✓	**26-Feb-2018**	04-Apr-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
TP6-water, T3-rainwater	**20-Feb-2018**	**23-Feb-2018**	27-Feb-2018	✓	**26-Feb-2018**	04-Apr-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
TP6-water, T3-rainwater, trip blank	**20-Feb-2018**	**23-Feb-2018**	06-Mar-2018	✓	**23-Feb-2018**	06-Mar-2018	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071)								
TP6-water,	T3-rainwater	**20-Feb-2018**	**23-Feb-2018**	27-Feb-2018	✓	**26-Feb-2018**	04-Apr-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
TP6-water, trip blank	T3-rainwater,	**20-Feb-2018**	**23-Feb-2018**	06-Mar-2018	✓	**23-Feb-2018**	06-Mar-2018	✓
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
TP6-water, trip blank	T3-rainwater,	**20-Feb-2018**	**23-Feb-2018**	06-Mar-2018	✓	**23-Feb-2018**	06-Mar-2018	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	4	39	10.26	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	39	10.26	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	31	12.90	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	31	6.45	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	31	6.45	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	31	6.45	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	17	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	20	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	17	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	20	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	* EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	* EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

QUALITY CONTROL REPORT

Work Order	: **EM1806900**	Page	: 1 of 3
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI	Date Samples Received	: 26-Apr-2018
Order number	: 4193.005	Date Analysis Commenced	: 27-Apr-2018
C-O-C number	: ----	Issue Date	: 01-May-2018
Sampler	: FIONA KESERUE-PONTE		
Site	: ----		
Quote number	: EN/222/17		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Emily Daos	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

- **No Method Blank (MB) or Laboratory Control Spike (LCS) Results are required to be reported.**

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1806900**	Page	: 1 of 4
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI	Date Samples Received	: 26-Apr-2018
Site	: ----	Issue Date	: 01-May-2018
Sampler	: FIONA KESERUE-PONTE	No. of samples received	: 3
Order number	: 4193.005	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOLID**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples							
Snap Lock Bag: Separate bag received (EA200)							
ACM1, ACM2, ACM3	**31-Jan-2018**	**----**	----	----	**27-Apr-2018**	30-Jul-2018	✓

Quality Control Parameter Frequency Compliance

- **No Quality Control data available for this section.**

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Friability	* EA156	SOLID	In house: Referenced to Code of Practice for the Management and Control of Asbestos in Workplaces [NOHSC:2018 (2005)] and the Safe Work Australia model Code Of Practice for How To Manage And Control Asbestos In The Workplace 2016
Asbestos Identification in Bulk Solids	EA200	SOLID	In house: Referenced to AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1808830**	Page	: 1 of 9
Amendment	: **1**		
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI - Remediation	Date Samples Received	: 04-Jun-2018
Order number	: 4193.005	Date Analysis Commenced	: 04-Jun-2018
C-O-C number	: ----	Issue Date	: 27-Jun-2018
Sampler	: FKP		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 33		
No. of samples analysed	: 33		

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- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
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RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

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Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1700743)									
EM1808783-001	Anonymous	EA055: Moisture Content	----	0.1	%	3.7	3.5	4.70	No Limit
EM1808830-008	Trip1.1 30.5	EA055: Moisture Content	----	0.1	%	17.3	16.8	3.00	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1700744)									
EM1808830-018	TP10V-16	EA055: Moisture Content	----	0.1	%	9.9	9.0	9.69	No Limit
EM1808958-008	Anonymous	EA055: Moisture Content	----	0.1	%	4.6	4.7	3.47	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1704130)									
EM1808830-024	FILL1	EA055: Moisture Content	----	0.1	%	7.2	7.1	1.41	No Limit
EM1808958-003	Anonymous	EA055: Moisture Content	----	0.1	%	4.5	4.5	0.00	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1704069)									
EM1808425-001	Anonymous	EG005T: Barium	7440-39-3	10	mg/kg	50	30	60.4	No Limit
EM1808425-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	12	13	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	10	9	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	14	12	19.2	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	46	59	23.5	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EM1808830-032	ACM-SP1	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 1704069) - continued									
EM1808830-032	ACM-SP1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	180	130	38.1	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	7	5	25.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	8	6	26.6	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	9	7	26.4	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	30	24	21.7	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	265	219	19.1	0% - 20%
		EG005T: Manganese	7439-96-5	5	mg/kg	278	252	9.99	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	24	19	23.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	174	160	8.31	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1704070)									
EM1808425-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1808830-032	ACM-SP1	EG035T: Mercury	7439-97-6	0.1	mg/kg	1.3	1.4	8.82	0% - 50%
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1700064)									
EM1808830-002	TP10V-01	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1808830-012	TP10V-10	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1700764)									
EM1808830-021	TP10V-19	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1704143)									
EM1808830-002	TP10V-01	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1808830-012	TP10V-10	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1704155)									
EM1809059-012	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1809059-005	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1700064)									
EM1808830-002	TP10V-01	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1808830-012	TP10V-10	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1700764)									
EM1808830-021	TP10V-19	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1704143)									
EM1808830-002	TP10V-01	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1808830-012	TP10V-10	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1704155)									
EM1809059-012	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1809059-005	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 1700064)									
EM1808830-002	TP10V-01	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1808830-012	TP10V-10	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP080: BTEXN (QC Lot: 1700764)									
EM1808830-021	TP10V-19	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 1700764) - continued									
EM1808830-021	TP10V-19	EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1700326)									
EM1808913-012	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	10200	10300	1.12	No Limit
EM1809034-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1700326)									
EM1808913-012	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	9360	9460	1.05	No Limit
EM1809034-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1700326)									
EM1808913-012	Anonymous	EP080: Benzene	71-43-2	1	µg/L	848	846	0.305	No Limit
		EP080: Toluene	108-88-3	2	µg/L	7370	7320	0.735	0% - 20%
		EP080: Ethylbenzene	100-41-4	2	µg/L	222	224	0.712	0% - 20%
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	8	8	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	3	3	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1809034-002	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	2	2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1704069)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	92.1	79	113
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	96.0	79	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	100	85	120
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	117	82	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	85.6	85	109
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	90.6	83	109
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	91.1	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	85.9	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	88.4	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	94.4	82	107
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	93.0	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	97.0	93	109
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	91.1	80	109
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	90.7	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1704070)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	82.2	77	104
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1700064)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	82.8	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1700764)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	88.3	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1704143)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	677 mg/kg	93.5	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	2731 mg/kg	104	84	115
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1311 mg/kg	108	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1704155)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	106	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	112	84	115
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	102	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1700064)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	81.4	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1700764)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1700764) - continued								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	86.0	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1704143)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	978 mg/kg	98.6	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3502 mg/kg	107	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	244 mg/kg	100	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1704155)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	106	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	107	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	102	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN (QCLot: 1700064)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	80.6	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	89.2	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	83.1	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	89.0	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	90.9	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	79.4	66	130
EP080: BTEXN (QCLot: 1700764)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	83.5	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	87.4	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	87.9	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	95.7	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	97.0	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	87.5	66	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1700326)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	91.6	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1700326)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	89.4	66	123
EP080: BTEXN (QCLot: 1700326)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	88.9	74	123
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	99.6	77	128

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 1700326) - continued								
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	93.7	73	126
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	102	72	131
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	105	74	131
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	111	74	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1704069)							
EM1808830-024	FILL1	EG005T: Arsenic	7440-38-2	50 mg/kg	95.9	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	77.6	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	99.9	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	90.7	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	90.4	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	97.1	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	105	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	# Not Determined	68	136
		EG005T: Nickel	7440-02-0	50 mg/kg	90.2	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	86.2	71	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	93.9	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	105	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1704070)							
EM1808830-024	FILL1	EG035T: Mercury	7439-97-6	5 mg/kg	89.0	76	116
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1700064)							
EM1808830-003	TP10V-02	EP080: C6 - C9 Fraction	----	28 mg/kg	84.1	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1700764)							
EM1808830-022	TP10V-20	EP080: C6 - C9 Fraction	----	28 mg/kg	82.2	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1704143)							
EM1808830-003	TP10V-02	EP071: C10 - C14 Fraction	----	806 mg/kg	74.8	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	88.4	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	82.7	64	118

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1704155)							
EM1808830-023	TP10V-21	EP071: C10 - C14 Fraction	----	806 mg/kg	102	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	106	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	95.4	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1700064)							
EM1808830-003	TP10V-02	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	80.9	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1700764)							
EM1808830-022	TP10V-20	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	80.7	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1704143)							
EM1808830-003	TP10V-02	EP071: >C10 - C16 Fraction	----	1160 mg/kg	78.4	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	88.0	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	70.5	44	126
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1704155)							
EM1808830-023	TP10V-21	EP071: >C10 - C16 Fraction	----	1160 mg/kg	101	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	101	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	95.9	44	126
EP080: BTEXN (QCLot: 1700064)							
EM1808830-003	TP10V-02	EP080: Benzene	71-43-2	2 mg/kg	94.8	50	136
		EP080: Toluene	108-88-3	2 mg/kg	90.5	56	139
EP080: BTEXN (QCLot: 1700764)							
EM1808830-022	TP10V-20	EP080: Benzene	71-43-2	2 mg/kg	81.9	50	136
		EP080: Toluene	108-88-3	2 mg/kg	82.0	56	139

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1700326)							
EM1809034-003	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	64.7	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1700326)							
EM1809034-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	65.2	44	122
EP080: BTEXN (QCLot: 1700326)							
EM1809034-003	Anonymous	EP080: Benzene	71-43-2	20 µg/L	75.6	68	130
		EP080: Toluene	108-88-3	20 µg/L	80.3	72	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1808830**	Page	: 1 of 9
Amendment	: **1**		
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI - Remediation	Date Samples Received	: 04-Jun-2018
Site	: ----	Issue Date	: 27-Jun-2018
Sampler	: FKP	No. of samples received	: 33
Order number	: 4193.005	No. of samples analysed	: 33

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EM1808830--024	FILL1	**Manganese**	7439-96-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
TP10V-01, TP10V-02, TP10V-03, TP10V-04, TP10V-05, TP10V-06, Trip1.1 30.5, TP10V-07, TP10V-08, TP10V-09, TP10V-10, TP10V-11, TP10V-12, TP10V-13, TP10V-14, TP10V-15, TP10V-16, TP10V-17, TP10V-18, TP10V-19, TP10V-20, TP10V-21	**30-May-2018**	**----**	----	----	**05-Jun-2018**	13-Jun-2018	✓
Soil Glass Jar - Unpreserved (EA055)							
FILL1, FILL2, FILL3, FILL4, FILL5, FILL6, FILL7, FILL8, ACM-SP1	**30-May-2018**	**----**	----	----	**06-Jun-2018**	13-Jun-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Miscellaneous Plastic Container (EA200)								
FILL1,	FILL2,	**30-May-2018**	**----**	----	----	**20-Jun-2018**	26-Nov-2018	✓
FILL3,	FILL4,							
FILL5,	FILL6,							
FILL7,	FILL8,							
ACM-SP1,	SP-MET							
EA200N: Asbestos Quantification (non-NATA)								
Miscellaneous Plastic Container (EA200N)								
FILL1,	FILL2,	**30-May-2018**	**----**	----	----	**20-Jun-2018**	26-Nov-2018	✓
FILL3,	FILL4,							
FILL5,	FILL6,							
FILL7,	FILL8,							
ACM-SP1,	SP-MET							
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
FILL1,	FILL2,	**30-May-2018**	**07-Jun-2018**	26-Nov-2018	✓	**07-Jun-2018**	26-Nov-2018	✓
FILL3,	FILL4,							
FILL5,	FILL6,							
FILL7,	FILL8,							
ACM-SP1								
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
FILL1,	FILL2,	**30-May-2018**	**07-Jun-2018**	27-Jun-2018	✓	**08-Jun-2018**	27-Jun-2018	✓
FILL3,	FILL4,							
FILL5,	FILL6,							
FILL7,	FILL8,							
ACM-SP1								

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
TP10V-01, TP10V-02, TP10V-03, TP10V-04, TP10V-05, TP10V-06, Trip1.1 30.5, TP10V-07, TP10V-08, TP10V-09, TP10V-10, TP10V-11, TP10V-12, TP10V-13, TP10V-14, TP10V-15, TP10V-16, TP10V-17, TP10V-18	**30-May-2018**	**04-Jun-2018**	13-Jun-2018	✓	**05-Jun-2018**	13-Jun-2018	✓
Soil Glass Jar - Unpreserved (EP080)							
TP10V-19, TP10V-20, TP10V-21	**30-May-2018**	**05-Jun-2018**	13-Jun-2018	✓	**05-Jun-2018**	13-Jun-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
TP10V-01, TP10V-02, TP10V-03, TP10V-04, TP10V-05, TP10V-06, Trip1.1 30.5, TP10V-07, TP10V-08, TP10V-09, TP10V-10, TP10V-11, TP10V-12, TP10V-13, TP10V-14, TP10V-15, TP10V-16, TP10V-17, TP10V-18, TP10V-19, TP10V-20, TP10V-21	**30-May-2018**	**07-Jun-2018**	13-Jun-2018	✓	**07-Jun-2018**	17-Jul-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
TP10V-01, TP10V-02, TP10V-03, TP10V-04, TP10V-05, TP10V-06, Trip1.1 30.5, TP10V-07, TP10V-08, TP10V-09, TP10V-10, TP10V-11, TP10V-12, TP10V-13, TP10V-14, TP10V-15, TP10V-16, TP10V-17, TP10V-18	**30-May-2018**	**04-Jun-2018**	13-Jun-2018	✓	**05-Jun-2018**	13-Jun-2018	✓
Soil Glass Jar - Unpreserved (EP080)							
TP10V-19, TP10V-20, TP10V-21	**30-May-2018**	**05-Jun-2018**	13-Jun-2018	✓	**05-Jun-2018**	13-Jun-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
TP10V-01, TP10V-02, TP10V-03, TP10V-04, TP10V-05, TP10V-06, Trip1.1 30.5, TP10V-07, TP10V-08, TP10V-09, TP10V-10, TP10V-11, TP10V-12, TP10V-13, TP10V-14, TP10V-15, TP10V-16, TP10V-17, TP10V-18, TP10V-19, TP10V-20, TP10V-21	**30-May-2018**	**07-Jun-2018**	13-Jun-2018	✓	**07-Jun-2018**	17-Jul-2018	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
TP10V-01, TP10V-02, TP10V-03, TP10V-04, TP10V-05, TP10V-06, Trip1.1 30.5, TP10V-07, TP10V-08, TP10V-09, TP10V-10, TP10V-11, TP10V-12, TP10V-13, TP10V-14, TP10V-15, TP10V-16, TP10V-17, TP10V-18	**30-May-2018**	**04-Jun-2018**	13-Jun-2018	✓	**05-Jun-2018**	13-Jun-2018	✓
Soil Glass Jar - Unpreserved (EP080)							
TP10V-19, TP10V-20, TP10V-21	**30-May-2018**	**05-Jun-2018**	13-Jun-2018	✓	**05-Jun-2018**	13-Jun-2018	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
Trip Blank	**30-May-2018**	**06-Jun-2018**	13-Jun-2018	✓	**06-Jun-2018**	13-Jun-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
Trip Blank	**30-May-2018**	**06-Jun-2018**	13-Jun-2018	✓	**06-Jun-2018**	13-Jun-2018	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
Trip Blank	**30-May-2018**	**06-Jun-2018**	13-Jun-2018	✓	**06-Jun-2018**	13-Jun-2018	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	6	60	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	20	15.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	38	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	24	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	24	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	24	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	24	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
TRH Volatiles/BTEX	EP080	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
TRH Volatiles/BTEX	EP080	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
TRH Volatiles/BTEX	EP080	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
TRH Volatiles/BTEX	EP080	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM 2013 with Confirmation of Identification by AS 4964 - 2004 Gravimetric determination of Asbestos Containing Material, Fibrous Asbestos, Asbestos Fines and sample weight and calculation of percentage concentrations per NEPM protocols. Asbestos (Fines and Fibrous FA+AF) is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.

Preparation Methods	Method	Matrix	Method Descriptions
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1808910**	Page	: 1 of 11
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI	Date Samples Received	: 31-May-2018
Order number	: 4193.005	Date Analysis Commenced	: 01-Jun-2018
C-O-C number	: ----	Issue Date	: 06-Jun-2018
Sampler	: FIONA KESERUE-PONTE		
Site	:		
Quote number	: ME/463/17		
No. of samples received	: 11		
No. of samples analysed	: 11		

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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1695050)									
EM1808899-001	Anonymous	EA055: Moisture Content	----	0.1	%	32.8	32.1	1.90	0% - 20%
EM1808910-003	SV1	EA055: Moisture Content	----	0.1	%	6.9	6.5	6.47	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1697585)									
EM1808898-010	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	80	80	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	34	35	0.00	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	12	14	16.8	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	25	28	9.21	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	14	13	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	36	31	13.4	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	288	300	4.03	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	46	42	9.81	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	43	38	14.3	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EM1808910-010	T14-03-v01	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	20	36.6	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	4	47.3	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	3	2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	3	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005T: Total Metals by ICP-AES (QC Lot: 1697585) - continued									
EM1808910-010	T14-03-v01	EG005T: Lead	7439-92-1	5	mg/kg	8	5	47.3	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	54	46	15.7	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	24	11	71.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	9	8	14.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1697586)									
EM1808898-010	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1808910-010	T14-03-v01	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1694764)									
EM1808880-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1808910-006	SV4	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1697555)									
EM1808910-003	SV1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1808857-008	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1694764)									
EM1808880-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1808910-006	SV4	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1697555)									
EM1808910-003	SV1	EP071: >C16 - C34 Fraction	----	100	mg/kg	150	150	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	150	150	0.00	No Limit
EM1808857-008	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 1694764)									
EM1808880-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 1694764) - continued									
EM1808880-001	Anonymous	EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1808910-006	SV4	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 1697417)									
EM1808907-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.461	0.442	4.23	0% - 20%
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.314	0.314	0.00	0% - 20%
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	0.011	0.009	18.2	0% - 50%
		EG020A-T: Barium	7440-39-3	0.001	mg/L	3.31	3.80	13.8	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.027	0.027	0.00	0% - 20%
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.174	0.170	2.62	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	5.44	5.43	0.0333	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	7.25	8.00	9.90	0% - 20%
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	251	262	4.07	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.218	0.219	0.00	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	326	335	2.92	0% - 20%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	0.02	0.02	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	0.10	0.08	21.4	No Limit
EM1808917-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0001	0.0003	87.4	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.016	0.019	14.9	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.006	0.006	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.001	0.002	0.00	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	2.85	3.22	12.0	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.006	0.006	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.108	0.128	17.3	0% - 20%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1702219)									
EM1808910-001	rinsate-trowel	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1808950-005	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1694561)									
EM1808879-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1695344)									
EM1808869-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1808870-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1697300)									
EM1808886-021	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	370	340	8.54	0% - 50%
EM1808902-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1694561)									
EM1808879-001	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1695344)									
EM1808869-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1808870-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1697300)									
EM1808886-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	390	360	7.49	0% - 50%
EM1808902-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1695344)									
EM1808869-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1808870-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EP080: BTEXN (QC Lot: 1697300)									
EM1808886-021	Anonymous	EP080: Benzene	71-43-2	1	µg/L	24	22	9.17	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 1697300) - continued									
EM1808886-021	Anonymous	EP080: Toluene	108-88-3	2	µg/L	19	14	29.9	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	50	50	0.00	0% - 20%
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	86	86	0.00	0% - 20%
		EP080: ortho-Xylene	95-47-6	2	µg/L	41	37	10.8	0% - 20%
		EP080: Naphthalene	91-20-3	5	µg/L	9	9	0.00	No Limit
EM1808902-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1697585)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	92.0	79	113
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	97.1	79	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	99.8	85	120
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	112	82	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	85.5	85	109
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	98.1	83	109
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	93.1	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	90.8	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	90.8	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	104	82	107
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	95.4	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	97.8	93	109
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	93.4	80	109
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	96.8	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1697586)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	80.2	77	104
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1694764)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	102	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1697555)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	93.7	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	106	84	115
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	99.6	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1694764)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	102	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1697555)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	93.6	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	103	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	97.1	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN (QCLot: 1694764)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	92.8	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	120	77	125

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 1694764) - continued								
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	97.3	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	113	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	126	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	83.5	66	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 1697417)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	90	110
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	112	88	113
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	105	88	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	86	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	102	87	109
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	103	88	113
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.9	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	102	88	109
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	105	88	111
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	103	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	99.3	85	113
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	103	88	112
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	101	87	113
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	108	88	118
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1702219)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	87.0	81	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1694561)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	4331 µg/L	64.7	58	134
EP071: C15 - C28 Fraction	----	100	µg/L	<100	16952 µg/L	67.6	60	133
EP071: C29 - C36 Fraction	----	50	µg/L	<50	8695 µg/L	65.5	54	137
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1695344)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	87.2	68	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1697300)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	96.3	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1694561)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	6292 µg/L	64.6	58	122
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	22143 µg/L	65.8	56	132
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1677 µg/L	66.9	58	137

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1695344)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	85.9	66	123
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1697300)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	97.4	66	123
EP080: BTEXN (QCLot: 1695344)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	87.8	74	123
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	89.2	77	128
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	85.2	73	126
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	85.1	72	131
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	88.0	74	131
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	86.1	74	124
EP080: BTEXN (QCLot: 1697300)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	88.7	74	123
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	86.6	77	128
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	107	73	126
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	113	72	131
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	111	74	131
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	97.0	74	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1697585)							
EM1808899-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	87.0	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	104	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	96.9	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	88.2	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	94.8	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	94.8	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	88.7	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	# Not Determined	68	136
		EG005T: Nickel	7440-02-0	50 mg/kg	89.8	78	120

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1697585) - continued							
EM1808899-001	Anonymous	EG005T: Selenium	7782-49-2	50 mg/kg	81.7	71	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	90.0	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	89.8	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1697586)							
EM1808899-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	84.6	76	116
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1694764)							
EM1808898-002	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	87.2	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1697555)							
EM1808857-012	Anonymous	EP071: C10 - C14 Fraction	----	806 mg/kg	86.0	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	96.0	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	88.4	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1694764)							
EM1808898-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	84.8	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1697555)							
EM1808857-012	Anonymous	EP071: >C10 - C16 Fraction	----	1160 mg/kg	85.1	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	92.4	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	80.5	44	126
EP080: BTEXN (QCLot: 1694764)							
EM1808898-002	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	93.2	50	136
		EP080: Toluene	108-88-3	2 mg/kg	137	56	139

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1697417)							
EM1808907-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	96.4	82	118
		EG020A-T: Beryllium	7440-41-7	1 mg/L	86.8	79	121
		EG020A-T: Barium	7440-39-3	1 mg/L	86.4	80	114
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	80.0	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	88.5	80	118
		EG020A-T: Cobalt	7440-48-4	1 mg/L	84.8	82	120
		EG020A-T: Copper	7440-50-8	1 mg/L	# Not Determined	81	115
		EG020A-T: Lead	7439-92-1	10 mg/L	85.8	83	121
		EG020A-T: Manganese	7439-96-5	10 mg/L	# Not Determined	73	123
		EG020A-T: Nickel	7440-02-0	1 mg/L	92.6	80	118

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1697417) - continued							
EM1808907-001	Anonymous	EG020A-T: Vanadium	7440-62-2	1 mg/L	91.9	81	119
		EG020A-T: Zinc	7440-66-6	10 mg/L	# Not Determined	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1702219)							
EM1808926-003	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	84.6	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1694561)							
EM1808879-003	Anonymous	EP071: C10 - C14 Fraction	----	4331 µg/L	90.1	50	130
		EP071: C15 - C28 Fraction	----	16952 µg/L	89.0	54	136
		EP071: C29 - C36 Fraction	----	8695 µg/L	86.4	50	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1695344)							
EM1808869-002	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	60.2	43	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1697300)							
EM1808827-001	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	63.8	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1694561)							
EM1808879-003	Anonymous	EP071: >C10 - C16 Fraction	----	6292 µg/L	87.6	50	128
		EP071: >C16 - C34 Fraction	----	22143 µg/L	86.7	50	150
		EP071: >C34 - C40 Fraction	----	1677 µg/L	88.6	51	159
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1695344)							
EM1808869-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	60.1	44	122
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1697300)							
EM1808827-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	62.7	44	122
EP080: BTEXN (QCLot: 1695344)							
EM1808869-002	Anonymous	EP080: Benzene	71-43-2	20 µg/L	76.4	68	130
		EP080: Toluene	108-88-3	20 µg/L	77.4	72	132
EP080: BTEXN (QCLot: 1697300)							
EM1808827-001	Anonymous	EP080: Benzene	71-43-2	20 µg/L	83.8	68	130
		EP080: Toluene	108-88-3	20 µg/L	80.4	72	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1808910**	Page	: 1 of 8
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI	Date Samples Received	: 31-May-2018
Site	:	Issue Date	: 06-Jun-2018
Sampler	: FIONA KESERUE-PONTE	No. of samples received	: 11
Order number	: 4193.005	No. of samples analysed	: 11

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EM1808899--001	Anonymous	**Manganese**	7439-96-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG020T: Total Metals by ICP-MS	EM1808907--001	Anonymous	**Copper**	7440-50-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG020T: Total Metals by ICP-MS	EM1808907--001	Anonymous	**Manganese**	7439-96-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG020T: Total Metals by ICP-MS	EM1808907--001	Anonymous	**Zinc**	7440-66-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
SV1, SV2, SV3, SV4, SV5, SV6, Vtripl 1, T14-03-v01, SP-MET	**28-May-2018**	**----**	----	----	**01-Jun-2018**	11-Jun-2018	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
T14-03-v01, SP-MET	**28-May-2018**	**04-Jun-2018**	24-Nov-2018	✓	**04-Jun-2018**	24-Nov-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
T14-03-v01, SP-MET	**28-May-2018**	**04-Jun-2018**	25-Jun-2018	✓	**05-Jun-2018**	25-Jun-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
SV1, SV2, SV3, SV4, SV5, SV6, Vtripl 1	**28-May-2018**	**01-Jun-2018**	11-Jun-2018	✓	**01-Jun-2018**	11-Jun-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
SV1, SV2, SV3, SV4, SV5, SV6, Vtripl 1	**28-May-2018**	**04-Jun-2018**	11-Jun-2018	✓	**04-Jun-2018**	14-Jul-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
SV1, SV2, SV3, SV4, SV5, SV6, Vtripl 1	**28-May-2018**	**01-Jun-2018**	11-Jun-2018	✓	**01-Jun-2018**	11-Jun-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
SV1, SV2, SV3, SV4, SV5, SV6, Vtripl 1	**28-May-2018**	**04-Jun-2018**	11-Jun-2018	✓	**04-Jun-2018**	14-Jul-2018	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
SV1, SV2, SV3, SV4, SV5, SV6, Vtripl 1	**28-May-2018**	**01-Jun-2018**	11-Jun-2018	✓	**01-Jun-2018**	11-Jun-2018	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG020A-T)							
rinsate-trowel	**28-May-2018**	**04-Jun-2018**	24-Nov-2018	✓	**05-Jun-2018**	24-Nov-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)							
rinsate-trowel	**28-May-2018**	**----**	----	----	**06-Jun-2018**	25-Jun-2018	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
rinsate-trowel	**28-May-2018**	**01-Jun-2018**	04-Jun-2018	✓	**05-Jun-2018**	11-Jul-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
rinsate-trowel	**28-May-2018**	**01-Jun-2018**	11-Jun-2018	✓	**01-Jun-2018**	11-Jun-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
trip blank	**28-May-2018**	**04-Jun-2018**	11-Jun-2018	✓	**04-Jun-2018**	11-Jun-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
rinsate-trowel	**28-May-2018**	**01-Jun-2018**	04-Jun-2018	✓	**05-Jun-2018**	11-Jul-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
rinsate-trowel	**28-May-2018**	**01-Jun-2018**	11-Jun-2018	✓	**01-Jun-2018**	11-Jun-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
trip blank	**28-May-2018**	**04-Jun-2018**	11-Jun-2018	✓	**04-Jun-2018**	11-Jun-2018	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
rinsate-trowel	**28-May-2018**	**01-Jun-2018**	11-Jun-2018	✓	**01-Jun-2018**	11-Jun-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
trip blank	**28-May-2018**	**04-Jun-2018**	11-Jun-2018	✓	**04-Jun-2018**	11-Jun-2018	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	37	10.81	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	37	5.41	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Method Blanks (MB) - Continued							
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1809075**	Page	: 1 of 19
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI	Date Samples Received	: 05-Jun-2018
Order number	: 4193.005	Date Analysis Commenced	: 06-Jun-2018
C-O-C number	: ----	Issue Date	: 13-Jun-2018
Sampler	: FKP		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 12		
No. of samples analysed	: 12		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1704132)									
EM1809075-002	Tripl 1	EA055: Moisture Content	----	0.1	%	13.7	13.8	1.36	0% - 50%
EM1809075-011	D4	EA055: Moisture Content	----	0.1	%	13.2	12.8	3.14	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 1704071)									
EM1809059-008	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	40	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	7	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	5	6	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	7	16.5	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	52	58	10.8	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	11	13	14.6	No Limit
EM1809075-012	D5	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	60	70	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	4	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	5	4	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	5	25.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 1704071) - continued									
EM1809075-012	D5	EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	14	21	42.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	17	24	36.2	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	172	145	16.8	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	37	41	10.2	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1709696)									
EM1809021-082	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	540	560	3.52	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	27	28	0.00	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	7	7	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	15	15	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	19	19	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	7	7	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	278	286	3.04	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	44	43	0.00	No Limit
EM1809088-008	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	50	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	16	15	7.60	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	4	4	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	11	11	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	7	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	14	13	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	14	18.8	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	33	31	6.47	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	25	22	14.3	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1704070)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1704070) - continued									
EM1808425-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1808830-032	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	1.3	1.4	8.82	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1704072)									
EM1809075-012	D5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1709698)									
EM1809021-082	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1809088-008	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 1712132)									
EM1809045-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1809084-002	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 1712139)									
EM1809045-001	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1809088-002	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 1704056)									
EM1808831-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	290	300	6.10	No Limit
EM1809075-012	D5	EK040T: Fluoride	16984-48-8	40	mg/kg	50	50	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 1709043)									
EM1808982-037	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	280	260	8.24	No Limit
EM1809098-002	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	380	390	3.11	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 1704151)									
EM1809075-011	D4	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1809075-012	D5	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 1709598)									
EM1809100-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1809140-008	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1704148)									
EM1809075-011	D4	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1704148) - continued									
EM1809075-011	D4	EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EM1809075-012	D5	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1709601)									
EM1809100-002	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1709601) - continued									
EM1809100-002	Anonymous	EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EM1809140-008	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 1704150)									
EM1809075-011	D4	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 1704150) - continued									
EM1809075-011	D4	EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EM1809075-012	D5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 1709599)									
EM1809100-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EM1809140-008	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 1709599) - continued									
EM1809140-008	Anonymous	EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1704150)									
EM1809075-011	D4	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1809075-012	D5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1709599)									
EM1809100-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1709599) - continued									
EM1809100-002	Anonymous	EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1809140-008	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1711297)									
EM1809075-002	Tripl 1	EP075-TAS: Benzo(a)pyrene	50-32-8	0.05	mg/kg	<0.05	0.05	0.00	No Limit
EM1809193-005	Anonymous	EP075-TAS: Benzo(a)pyrene	50-32-8	0.05	mg/kg	0.09	0.18	61.6	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1704014)									
EM1809067-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1809075-006	C4	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1704149)									
EM1809075-011	D4	EP071: C15 - C28 Fraction	----	100	mg/kg	550	600	8.82	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	510	560	9.53	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	1060	1160	9.01	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1704149) - continued									
EM1809075-012	D5	EP071: C15 - C28 Fraction	----	100	mg/kg	250	230	9.08	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	180	140	21.2	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	430	370	15.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1704158)									
EM1809075-005	C3	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1809021-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	120	130	8.54	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	120	130	8.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1704014)									
EM1809067-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1809075-006	C4	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1704149)									
EM1809075-011	D4	EP071: >C16 - C34 Fraction	----	100	mg/kg	940	1030	9.44	0% - 50%
		EP071: >C34 - C40 Fraction	----	100	mg/kg	210	220	5.41	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	1150	1250	8.33	0% - 20%
EM1809075-012	D5	EP071: >C16 - C34 Fraction	----	100	mg/kg	380	330	12.5	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	380	330	14.1	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1704158)									
EM1809075-005	C3	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1809021-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	130	140	7.64	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	130	140	7.41	No Limit
EP080: BTEXN (QC Lot: 1704014)									
EM1809067-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 1704014) - continued									
EM1809067-001	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1809075-006	C4	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1704071)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	89.1	79	113
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	94.8	79	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	97.1	85	120
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	94.5	85	109
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	88.4	83	109
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	87.9	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	84.2	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	86.2	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	92.0	82	107
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	103	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	90.8	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	97.0	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	94.8	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	105	88	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	88.2	82	111
EG005T: Total Metals by ICP-AES (QCLot: 1709696)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	91.6	79	113
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	102	79	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	100	85	120
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	89.4	85	109
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	87.6	83	109
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	90.0	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	85.4	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	89.3	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	93.3	82	107
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	106	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	89.6	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	95.8	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	86.3	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	103	88	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	89.9	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1704070)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	82.2	77	104
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1704072)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1704072) - continued								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	85.6	77	104
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1709698)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	94.6	77	104
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1712132)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	89.2	75	112
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1712139)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	97.0	80	110
EK040T: Fluoride Total (QCLot: 1704056)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	400 mg/kg	94.5	77	106
EK040T: Fluoride Total (QCLot: 1709043)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	400 mg/kg	84.2	77	106
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1704151)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	85.6	63	115
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1709598)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	63.8	63	115
EP068A: Organochlorine Pesticides (OC) (QCLot: 1704148)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.2	65	120
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	88.3	68	121
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	89.2	70	121
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	64	119
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	73.5	56	121
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	73.0	63	114
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	73.4	64	121
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	87.6	68	120
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	72	124
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.0	69	125
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	71	123
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	83.7	59	123
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	79.2	70	123
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.8	64	119
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	86.1	69	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.8	66	128
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	92.1	62	121
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.4	57	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	87.5	60	124
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	73	120
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	85.5	61	121

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 1709601)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	94.4	65	120
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	68	121
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	70	121
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.4	64	119
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.1	56	121
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.2	63	114
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	92.3	64	121
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	68	120
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	72	124
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.8	69	125
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.5	71	123
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	93.1	59	123
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.1	70	123
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	64	119
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	69	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.3	66	128
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	110	62	121
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.2	57	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	87.0	60	124
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	95.7	73	120
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	83.6	61	121
EP075(SIM)A: Phenolic Compounds (QCLot: 1704150)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	3 mg/kg	96.1	70	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	3 mg/kg	94.7	74	128
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	3 mg/kg	93.0	76	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	6 mg/kg	92.4	70	128
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	3 mg/kg	80.6	56	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	3 mg/kg	89.6	70	122
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	3 mg/kg	90.1	70	121
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	3 mg/kg	93.4	70	126
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	3 mg/kg	88.6	67	120
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	3 mg/kg	82.4	63	121
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	3 mg/kg	87.8	71	133
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	6 mg/kg	63.2	20	110
EP075(SIM)A: Phenolic Compounds (QCLot: 1709599)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	3 mg/kg	97.6	70	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	3 mg/kg	104	74	128
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	3 mg/kg	98.3	76	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	6 mg/kg	99.4	70	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 1709599) - continued								
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	3 mg/kg	73.8	56	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	3 mg/kg	100	70	122
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	3 mg/kg	95.2	70	121
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	3 mg/kg	97.5	70	126
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	3 mg/kg	93.1	67	120
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	3 mg/kg	79.0	63	121
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	3 mg/kg	88.6	71	133
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	6 mg/kg	21.5	20	110
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1704150)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	97.9	75	131
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	91.5	70	132
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	95.6	80	128
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	97.6	70	128
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	102	80	128
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.5 mg/kg	100	72	126
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	97.8	70	128
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	103	80	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	90.4	70	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	101	80	126
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	90.1	71	124
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	101	75	125
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	91.6	71	128
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	93.4	72	126
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	92.5	68	127
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1709599)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	99.0	75	131
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	102	70	132
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	102	80	128
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	102	70	128
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	104	80	128
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.6 mg/kg	108	72	126
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	111	70	128
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	114	80	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	97.9	70	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	102	80	126
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	85.5	71	124
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	99.2	75	125

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1709599) - continued								
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	81.6	71	128
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	80.9	72	126
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	82.0	68	127
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1711297)								
EP075-TAS: Benzo(a)pyrene	50-32-8	0.05	mg/kg	<0.05	2 mg/kg	110	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1704014)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	89.8	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1704149)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	677 mg/kg	91.7	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	2731 mg/kg	102	84	115
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1311 mg/kg	105	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1704158)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	107	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	112	84	115
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	100	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1704014)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	89.4	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1704149)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	978 mg/kg	96.8	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3502 mg/kg	105	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	244 mg/kg	92.8	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1704158)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	104	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	107	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	99.3	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN (QCLot: 1704014)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	86.5	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	88.8	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	93.4	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	102	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	105	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	94.1	66	130

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1704071)							
EM1809089-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	90.3	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	94.0	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	101	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	91.9	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	90.9	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	124	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	# Not Determined	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	128	68	136
		EG005T: Molybdenum	7439-98-7	50 mg/kg	85.1	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	99.3	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	85.5	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	# Not Determined	74	128
EG005T: Total Metals by ICP-AES (QCLot: 1709696)							
EM1809021-086	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	104	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	106	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	102	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	92.2	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	104	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	103	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	99.1	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	# Not Determined	68	136
		EG005T: Molybdenum	7439-98-7	50 mg/kg	85.4	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	97.9	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	90.5	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	102	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1704070)							
EM1808830-024	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	89.0	76	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1704072)							
EM1809089-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	83.8	76	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1709698)							
EM1809021-086	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	100	76	116

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1712132)							
EM1809045-003	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	63.4	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1712139)							
EM1809045-003	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	91.0	77	113
EK040T: Fluoride Total (QCLot: 1704056)							
EM1809045-001	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	86.2	70	130
EK040T: Fluoride Total (QCLot: 1709043)							
EM1808982-043	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	88.5	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1704151)							
EM1808958-011	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	83.4	44	144
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1709598)							
EM1809140-004	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	89.5	44	144
EP068A: Organochlorine Pesticides (OC) (QCLot: 1704148)							
EM1808958-004	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	84.1	22	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	68.4	18	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	76.2	23	136
		EP068: Dieldrin	60-57-1	0.5 mg/kg	77.8	42	136
		EP068: Endrin	72-20-8	0.5 mg/kg	78.2	23	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	90.5	20	133
EP068A: Organochlorine Pesticides (OC) (QCLot: 1709601)							
EM1809140-006	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	70.3	22	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	85.1	18	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	89.9	23	136
		EP068: Dieldrin	60-57-1	0.5 mg/kg	90.4	42	136
		EP068: Endrin	72-20-8	0.5 mg/kg	91.1	23	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	84.8	20	133
EP075(SIM)A: Phenolic Compounds (QCLot: 1704150)							
EM1808958-008	Anonymous	EP075(SIM): Phenol	108-95-2	3 mg/kg	96.6	63	117
		EP075(SIM): 2-Chlorophenol	95-57-8	3 mg/kg	95.8	65	123
		EP075(SIM): 2-Nitrophenol	88-75-5	3 mg/kg	72.6	40	134
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	3 mg/kg	89.2	56	122
		EP075(SIM): Pentachlorophenol	87-86-5	3 mg/kg	48.5	15	139
EP075(SIM)A: Phenolic Compounds (QCLot: 1709599)							
EM1809140-001	Anonymous	EP075(SIM): Phenol	108-95-2	3 mg/kg	97.0	63	117
		EP075(SIM): 2-Chlorophenol	95-57-8	3 mg/kg	100	65	123
		EP075(SIM): 2-Nitrophenol	88-75-5	3 mg/kg	68.2	40	134
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	3 mg/kg	86.3	56	122

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 1709599) - continued							
EM1809140-001	Anonymous	EP075(SIM): Pentachlorophenol	87-86-5	3 mg/kg	39.3	15	139
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1704150)							
EM1808958-008	Anonymous	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	91.7	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	99.1	52	148
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1709599)							
EM1809140-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	97.4	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	121	52	148
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1704014)							
EM1809073-008	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	77.9	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1704149)							
EM1808958-006	Anonymous	EP071: C10 - C14 Fraction	----	806 mg/kg	73.6	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	87.3	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	82.4	64	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1704158)							
EM1809021-015	Anonymous	EP071: C10 - C14 Fraction	----	806 mg/kg	101	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	104	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	93.0	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1704014)							
EM1809073-008	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	78.2	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1704149)							
EM1808958-006	Anonymous	EP071: >C10 - C16 Fraction	----	1160 mg/kg	77.2	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	87.0	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	73.7	44	126
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1704158)							
EM1809021-015	Anonymous	EP071: >C10 - C16 Fraction	----	1160 mg/kg	97.8	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	99.3	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	93.1	44	126
EP080: BTEXN (QCLot: 1704014)							
EM1809073-008	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	84.8	50	136
		EP080: Toluene	108-88-3	2 mg/kg	91.7	56	139

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1809075**	Page	: 1 of 9
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI	Date Samples Received	: 05-Jun-2018
Site	: ----	Issue Date	: 13-Jun-2018
Sampler	: FKP	No. of samples received	: 12
Order number	: 4193.005	No. of samples analysed	: 12

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EM1809089--001	Anonymous	**Lead**	7439-92-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005T: Total Metals by ICP-AES	EM1809021--086	Anonymous	**Manganese**	7439-96-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005T: Total Metals by ICP-AES	EM1809089--001	Anonymous	**Zinc**	7440-66-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
trip blank, Tripl 1, C1, C2, C3, C4, E1, D1, D2, D3, D4, D5	**01-Jun-2018**	**----**	----	----	**06-Jun-2018**	15-Jun-2018	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
D1, D2, D3, D4, D5	**01-Jun-2018**	**07-Jun-2018**	28-Nov-2018	✓	**07-Jun-2018**	28-Nov-2018	✓
Soil Glass Jar - Unpreserved (EG005T)							
Tripl 1	**01-Jun-2018**	**09-Jun-2018**	28-Nov-2018	✓	**12-Jun-2018**	28-Nov-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
D1, D2, D3, D4, D5	**01-Jun-2018**	**07-Jun-2018**	29-Jun-2018	✓	**08-Jun-2018**	29-Jun-2018	✓
Soil Glass Jar - Unpreserved (EG035T)							
Tripl 1	**01-Jun-2018**	**09-Jun-2018**	29-Jun-2018	✓	**12-Jun-2018**	29-Jun-2018	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
Tripl 1, D1, D2, D3, D4, D5	**01-Jun-2018**	**08-Jun-2018**	29-Jun-2018	✓	**08-Jun-2018**	15-Jun-2018	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
Tripl 1, D1, D2, D3, D4, D5	**01-Jun-2018**	**08-Jun-2018**	15-Jun-2018	✓	**12-Jun-2018**	22-Jun-2018	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
D1, D2, D3, D4, D5	**01-Jun-2018**	**06-Jun-2018**	29-Jun-2018	✓	**07-Jun-2018**	29-Jun-2018	✓
Soil Glass Jar - Unpreserved (EK040T)							
Tripl 1	**01-Jun-2018**	**07-Jun-2018**	29-Jun-2018	✓	**12-Jun-2018**	29-Jun-2018	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066)							
D1, D2, D3, D4, D5	**01-Jun-2018**	**07-Jun-2018**	15-Jun-2018	✓	**07-Jun-2018**	17-Jul-2018	✓
Soil Glass Jar - Unpreserved (EP066)							
Tripl 1	**01-Jun-2018**	**08-Jun-2018**	15-Jun-2018	✓	**08-Jun-2018**	18-Jul-2018	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
D1, D2, D3, D4, D5	**01-Jun-2018**	**07-Jun-2018**	15-Jun-2018	✓	**07-Jun-2018**	17-Jul-2018	✓
Soil Glass Jar - Unpreserved (EP068)							
Tripl 1	**01-Jun-2018**	**08-Jun-2018**	15-Jun-2018	✓	**08-Jun-2018**	18-Jul-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM))							
D1, D2, D3, D4, D5	**01-Jun-2018**	**07-Jun-2018**	15-Jun-2018	✓	**07-Jun-2018**	17-Jul-2018	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
Tripl 1	**01-Jun-2018**	**08-Jun-2018**	15-Jun-2018	✓	**08-Jun-2018**	18-Jul-2018	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
D1, D2, D3, D4, D5	**01-Jun-2018**	**07-Jun-2018**	15-Jun-2018	✓	**07-Jun-2018**	17-Jul-2018	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
Tripl 1	**01-Jun-2018**	**08-Jun-2018**	15-Jun-2018	✓	**08-Jun-2018**	18-Jul-2018	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-TAS)							
Tripl 1, D1, D2, D3, D4, D5	**01-Jun-2018**	**08-Jun-2018**	15-Jun-2018	✓	**08-Jun-2018**	18-Jul-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
trip blank, Tripl 1, C1, C2, C3, C4, E1, D1, D2, D3, D4, D5	**01-Jun-2018**	**06-Jun-2018**	15-Jun-2018	✓	**06-Jun-2018**	15-Jun-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
Tripl 1, C1, C2, C3, C4, E1, D1, D2, D3, D4, D5	**01-Jun-2018**	**07-Jun-2018**	15-Jun-2018	✓	**07-Jun-2018**	17-Jul-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
trip blank, Tripl 1, C1, C2, C3, C4, E1, D1, D2, D3, D4, D5	**01-Jun-2018**	**06-Jun-2018**	15-Jun-2018	✓	**06-Jun-2018**	15-Jun-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
Tripl 1, C1, C2, C3, C4, E1, D1, D2, D3, D4, D5	**01-Jun-2018**	**07-Jun-2018**	15-Jun-2018	✓	**07-Jun-2018**	17-Jul-2018	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
trip blank, Tripl 1, C1, C2, C3, C4, E1, D1, D2, D3, D4, D5	**01-Jun-2018**	**06-Jun-2018**	15-Jun-2018	✓	**06-Jun-2018**	15-Jun-2018	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Benzo(a)pyrene- Waste Classification (TAS requirements)	EP075-TAS	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	4	32	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	4	30	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	4	27	**14.81**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	5	41	**12.20**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	33	**12.12**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Benzo(a)pyrene- Waste Classification (TAS requirements)	EP075-TAS	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	41	**7.32**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Benzo(a)pyrene- Waste Classification (TAS requirements)	EP075-TAS	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	41	**7.32**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Method Blanks (MB) - Continued							
Total Metals by ICP-AES	EG005T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	41	**7.32**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)

Analytical Methods	Method	Matrix	Method Descriptions
Benzo(a)pyrene- Waste Classification (TAS requirements)	EP075-TAS	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1810131**	Page	: 1 of 7
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI - Remediation	Date Samples Received	: 25-Jun-2018
Order number	: 4193.005	Date Analysis Commenced	: 26-Jun-2018
C-O-C number	: ----	Issue Date	: 02-Jul-2018
Sampler	: FIONA KESERUE-PONTE		
Site	: ----		
Quote number	: EN/222/17		
No. of samples received	: 10		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1758002)									
EM1810131-002	Triplicate 1	EA055: Moisture Content	----	0.1	%	9.3	9.6	3.60	No Limit
EM1810133-004	Anonymous	EA055: Moisture Content	----	0.1	%	16.3	16.9	3.62	0% - 50%
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1753722)									
EM1810117-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1810131-010	Trench 4b	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1757319)									
EM1810131-002	Triplicate 1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1810178-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1753722)									
EM1810117-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1810131-010	Trench 4b	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1757319)									
EM1810131-002	Triplicate 1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1810178-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1757319) - continued									
EM1810178-001	Anonymous	EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 1753722)									
EM1810117-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1810131-010	Trench 4b	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1753451)									
EM1809971-123	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1810097-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1753451)									
EM1809971-123	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1810097-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1753451)									
EM1809971-123	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1810097-004	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1753722)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	73.3	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1757319)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	94.8	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	102	84	115
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	92.4	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1753722)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	75.4	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1757319)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	95.3	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	98.8	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	94.2	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN (QCLot: 1753722)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	74.7	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	77.0	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	76.0	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	79.3	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	86.4	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	92.3	66	130

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1753451)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	110	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1753451)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	106	66	123
EP080: BTEXN (QCLot: 1753451)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	105	74	123
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	106	77	128
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	108	73	126

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 1753451) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	109	72	131
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	108	74	131
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	89.0	74	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1753722)							
EM1810117-002	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	98.6	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1757319)							
EM1810131-004	Trench 1b	EP071: C10 - C14 Fraction	----	806 mg/kg	92.5	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	96.9	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	87.5	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1753722)							
EM1810117-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	99.9	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1757319)							
EM1810131-004	Trench 1b	EP071: >C10 - C16 Fraction	----	1160 mg/kg	91.7	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	93.4	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	88.0	44	126
EP080: BTEXN (QCLot: 1753722)							
EM1810117-002	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	96.4	50	136
		EP080: Toluene	108-88-3	2 mg/kg	102	56	139

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1753451)							
EM1809971-124	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	56.4	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1753451)							
EM1809971-124	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	55.3	44	122
EP080: BTEXN (QCLot: 1753451)							
EM1809971-124	Anonymous	EP080: Benzene	71-43-2	20 µg/L	70.2	68	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080: BTEXN (QCLot: 1753451) - continued							
EM1809971-124	Anonymous	EP080: Toluene	108-88-3	20 µg/L	76.9	72	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1810131**	Page	: 1 of 5
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI - Remediation	Date Samples Received	: 25-Jun-2018
Site	: ----	Issue Date	: 02-Jul-2018
Sampler	: FIONA KESERUE-PONTE	No. of samples received	: 10
Order number	: 4193.005	No. of samples analysed	: 10

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
Triplicate 1, Trench 1a, Trench 1b, Trench 2a, Trench 3a, Trench 3b, Trench 3c, Trench 4a, Trench 4b	**21-Jun-2018**	**----**	----	----	**27-Jun-2018**	05-Jul-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
Triplicate 1, Trench 1a, Trench 1b, Trench 2a, Trench 3a, Trench 3b, Trench 3c, Trench 4a, Trench 4b	**21-Jun-2018**	**26-Jun-2018**	05-Jul-2018	✓	**27-Jun-2018**	05-Jul-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
Triplicate 1, Trench 1a, Trench 1b, Trench 2a, Trench 3a, Trench 3b, Trench 3c, Trench 4a, Trench 4b	**21-Jun-2018**	**28-Jun-2018**	05-Jul-2018	✓	**28-Jun-2018**	07-Aug-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
Triplicate 1, Trench 1a, Trench 1b, Trench 2a, Trench 3a, Trench 3b, Trench 3c, Trench 4a, Trench 4b	**21-Jun-2018**	**26-Jun-2018**	05-Jul-2018	✓	**27-Jun-2018**	05-Jul-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
Triplicate 1, Trench 1a, Trench 1b, Trench 2a, Trench 3a, Trench 3b, Trench 3c, Trench 4a, Trench 4b	**21-Jun-2018**	**28-Jun-2018**	05-Jul-2018	✓	**28-Jun-2018**	07-Aug-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
Triplicate 1, Trench 1a, Trench 1b, Trench 2a, Trench 3a, Trench 3b, Trench 3c, Trench 4a, Trench 4b	**21-Jun-2018**	**26-Jun-2018**	05-Jul-2018	✓	**27-Jun-2018**	05-Jul-2018	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
Trip Blank	**21-Jun-2018**	**26-Jun-2018**	05-Jul-2018	✓	**28-Jun-2018**	05-Jul-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
Trip Blank	**21-Jun-2018**	**26-Jun-2018**	05-Jul-2018	✓	**28-Jun-2018**	05-Jul-2018	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
Trip Blank	**21-Jun-2018**	**26-Jun-2018**	05-Jul-2018	✓	**28-Jun-2018**	05-Jul-2018	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1814835**	Page	: 1 of 12
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI	Date Samples Received	: 14-Sep-2018
Order number	: 4193.005	Date Analysis Commenced	: 17-Sep-2018
C-O-C number	: ----	Issue Date	: 21-Sep-2018
Sampler	: FIONA KESERUE-PONTE		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 26		
No. of samples analysed	: 26		

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Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1934638)									
EM1814744-001	Anonymous	EA055: Moisture Content	----	0.1	%	6.2	6.5	3.18	No Limit
EM1814833-008	Anonymous	EA055: Moisture Content	----	0.1	%	20.3	18.6	8.78	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1934639)									
EM1814835-011	TR6-03	EA055: Moisture Content	----	0.1	%	18.7	17.3	7.98	0% - 50%
EM1814835-021	L3-12.9.18	EA055: Moisture Content	----	0.1	%	12.4	12.6	1.69	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 1934617)									
EM1814744-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	70	80	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	18	17	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	6	8	19.2	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	15	19	24.1	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	11	13	21.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	30	32	7.10	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	93	108	14.8	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	27	20	30.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	28	38	29.7	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EM1814783-002	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	60	60	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	21	17	20.0	0% - 50%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 1934617) - continued									
EM1814783-002	Anonymous	EG005T: Cobalt	7440-48-4	2	mg/kg	4	4	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	15	15	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	28	30	6.52	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	40	38	3.90	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	80	82	1.82	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	31	29	6.45	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	72	66	10.0	0% - 50%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1934618)									
EM1814835-009	TR6-01	EG005T: Lead	7439-92-1	5	mg/kg	245	255	4.24	0% - 20%
EM1814835-009	TR6-01	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	160	140	9.22	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	6	7	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	5	5	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	6	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	33	38	13.4	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	332	292	12.8	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	16	14	12.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	155	150	3.17	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EM1814835-018	TR6-10	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	4	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	4	4	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	4	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	5	5	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	51	52	0.00	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	11	10	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	10	10	0.00	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1934616)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1934616) - continued									
EM1814744-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1814783-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1934619)									
EM1814835-009	TR6-01	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.6	0.5	0.00	No Limit
EM1814835-018	TR6-10	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QC Lot: 1934467)									
EM1814835-006	TR5-03	EP071SG-S: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QC Lot: 1934467)									
EM1814835-006	TR5-03	EP071SG-S: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1934345)									
EM1814835-002	Triplicate 1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1814835-012	TR6-04	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1934348)									
EM1814835-022	SWP01	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1814836-013	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1934466)									
EM1814835-002	Triplicate 1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1814835-015	TR6-07	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1938587)									
EM1815001-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1815002-006	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1934345)									
EM1814835-002	Triplicate 1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1934345) - continued									
EM1814835-012	TR6-04	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1934348)									
EM1814835-022	SWP01	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1814836-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1934466)									
EM1814835-002	Triplicate 1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1814835-015	TR6-07	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1938587)									
EM1815001-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1815002-006	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 1934345)									
EM1814835-002	Triplicate 1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1814835-012	TR6-04	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP080: BTEXN (QC Lot: 1934348)									
EM1814835-022	SWP01	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 1934348) - continued									
EM1814835-022	SWP01	EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1814836-013	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1935915)									
EM1814884-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1814905-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1935915)									
EM1814884-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1814905-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1935915)									
EM1814884-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1814905-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1934617)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	93.3	78	107
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	93.2	76	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	100	84	113
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	112	84	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	87.2	76	108
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	94.2	78	110
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	94.6	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	95.0	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	92.4	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	94.6	81	110
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	95.8	80	109
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	98.2	92	110
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	94.2	78	106
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	93.2	79	110
EG005T: Total Metals by ICP-AES (QCLot: 1934618)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	93.8	78	107
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	93.9	76	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	101	84	113
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	110	84	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	88.7	76	108
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	96.2	78	110
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	96.0	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	96.0	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	93.7	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	96.8	81	110
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	97.9	80	109
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	98.0	92	110
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	95.7	78	106
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	96.0	79	110
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1934616)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	82.8	77	104
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1934619)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	90.3	77	104
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 1934467)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 1934467) - continued								
EP071SG-S: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	76.9	39	119
EP071SG-S: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	92.4	60	115
EP071SG-S: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	87.5	57	127
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 1934467)								
EP071SG-S: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	77.7	48	119
EP071SG-S: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	92.2	51	124
EP071SG-S: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	84.0	39	150
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1934345)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	74.9	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1934348)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	98.5	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1934466)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	90.9	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	96.2	84	115
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	88.0	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1938587)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	96.4	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	100.0	84	115
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	95.0	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1934345)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	72.9	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1934348)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	97.2	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1934466)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	89.1	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	91.7	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	97.6	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1938587)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	97.6	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	98.9	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	97.1	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN (QCLot: 1934345)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	74.6	74	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 1934345) - continued								
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	81.1	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	80.6	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	82.1	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	85.4	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	85.4	66	130
EP080: BTEXN (QCLot: 1934348)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	82.4	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	96.9	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	91.5	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	94.9	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	107	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	87.2	66	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1935915)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	78.9	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1935915)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	79.5	66	123
EP080: BTEXN (QCLot: 1935915)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	87.3	74	123
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	88.9	77	128
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	91.5	73	126
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	90.4	72	131
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	92.5	74	131
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	95.0	74	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1934617)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1934617) - continued							
EM1814744-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	95.7	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	106	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	103	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	93.9	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	88.2	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	123	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	# Not Determined	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	101	68	136
		EG005T: Nickel	7440-02-0	50 mg/kg	89.3	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	89.3	71	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	91.6	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	112	74	128
EG005T: Total Metals by ICP-AES (QCLot: 1934618)							
EM1814835-010	TR6-02	EG005T: Arsenic	7440-38-2	50 mg/kg	108	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	120	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	116	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	106	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	113	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	116	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	132	68	136
		EG005T: Nickel	7440-02-0	50 mg/kg	109	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	103	71	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	107	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	113	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1934616)							
EM1814744-002	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	94.1	76	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1934619)							
EM1814835-010	TR6-02	EG035T: Mercury	7439-97-6	5 mg/kg	99.2	76	116
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 1934467)							
EM1814835-009	TR6-01	EP071SG-S: C10 - C14 Fraction	----	806 mg/kg	81.6	56	110
		EP071SG-S: C15 - C28 Fraction	----	3006 mg/kg	98.8	57	107
		EP071SG-S: C29 - C36 Fraction	----	1584 mg/kg	92.8	62	112
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 1934467)							
EM1814835-009	TR6-01	EP071SG-S: >C10 - C16 Fraction	----	1160 mg/kg	82.7	57	109
		EP071SG-S: >C16 - C34 Fraction	----	3978 mg/kg	98.5	59	113
		EP071SG-S: >C34 - C40 Fraction	----	313 mg/kg	84.8	68	144

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1934345)							
EM1814835-003	Duplicate 1	EP080: C6 - C9 Fraction	----	28 mg/kg	53.6	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1934348)							
EM1814835-023	SWP02	EP080: C6 - C9 Fraction	----	28 mg/kg	55.1	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1934466)							
EM1814835-003	Duplicate 1	EP071: C10 - C14 Fraction	----	806 mg/kg	87.7	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	95.5	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	86.0	64	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1938587)							
EM1814835-022	SWP01	EP071: C10 - C14 Fraction	----	806 mg/kg	94.4	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	96.9	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	91.0	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1934345)							
EM1814835-003	Duplicate 1	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	51.1	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1934348)							
EM1814835-023	SWP02	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	54.0	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1934466)							
EM1814835-003	Duplicate 1	EP071: >C10 - C16 Fraction	----	1160 mg/kg	87.4	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	91.0	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	83.0	44	126
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1938587)							
EM1814835-022	SWP01	EP071: >C10 - C16 Fraction	----	1160 mg/kg	95.2	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	95.4	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	90.2	44	126
EP080: BTEXN (QCLot: 1934345)							
EM1814835-003	Duplicate 1	EP080: Benzene	71-43-2	2 mg/kg	75.9	50	136
		EP080: Toluene	108-88-3	2 mg/kg	75.3	56	139
EP080: BTEXN (QCLot: 1934348)							
EM1814835-023	SWP02	EP080: Benzene	71-43-2	2 mg/kg	61.8	50	136
		EP080: Toluene	108-88-3	2 mg/kg	64.2	56	139

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1935915)							
EM1814906-001	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	80.0	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1935915)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1935915) - continued							
EM1814906-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	72.9	44	122
EP080: BTEXN (QCLot: 1935915)							
EM1814906-001	Anonymous	EP080: Benzene	71-43-2	20 µg/L	93.7	68	130
		EP080: Toluene	108-88-3	20 µg/L	96.9	72	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1814835**	Page	: 1 of 8
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Telephone	: +61-3-8549 9630
Project	: Oatlands DSI	Date Samples Received	: 14-Sep-2018
Site	: ----	Issue Date	: 21-Sep-2018
Sampler	: FIONA KESERUE-PONTE	No. of samples received	: 26
Order number	: 4193.005	No. of samples analysed	: 26

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EM1814744--002	Anonymous	**Lead**	7439-92-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	***Date analysed***	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
Triplicate 1, Duplicate 1, TR5-01, TR5-02, TR5-03, TR5-04, TR5-05, TR6-01, TR6-02, TR6-03, TR6-04, TR6-05, TR6-06, TR6-07, TR6-08, TR6-09, TR6-10, TR6-11, TR6-SP1, L3-12.9.18, SWP01, SWP02, SWP03, SWP04, SWP05	**12-Sep-2018**	**----**	----	----	**17-Sep-2018**	26-Sep-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
Triplicate 1, TR5-01, TR5-03, TR5-05, TR6-02, TR6-04, TR6-06, TR6-08, TR6-10, TR6-SP1, SWP01, SWP03, SWP05	Duplicate 1, TR5-02, TR5-04, TR6-01, TR6-03, TR6-05, TR6-07, TR6-09, TR6-11, L3-12.9.18, SWP02, SWP04,	**12-Sep-2018**	**19-Sep-2018**	11-Mar-2019	✓	**19-Sep-2018**	11-Mar-2019	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
Triplicate 1, TR5-01, TR5-03, TR5-05, TR6-02, TR6-04, TR6-06, TR6-08, TR6-10, TR6-SP1, SWP01, SWP03, SWP05	Duplicate 1, TR5-02, TR5-04, TR6-01, TR6-03, TR6-05, TR6-07, TR6-09, TR6-11, L3-12.9.18, SWP02, SWP04,	**12-Sep-2018**	**19-Sep-2018**	10-Oct-2018	✓	**19-Sep-2018**	10-Oct-2018	✓
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup							
Soil Glass Jar - Unpreserved (EP071SG-S)							
TR5-03, TR6-03	TR6-01,	**12-Sep-2018**	**18-Sep-2018**	26-Sep-2018	✓	**18-Sep-2018**	28-Oct-2018	✓
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup							
Soil Glass Jar - Unpreserved (EP071SG-S)							
TR5-03, TR6-03	TR6-01,	**12-Sep-2018**	**18-Sep-2018**	26-Sep-2018	✓	**18-Sep-2018**	28-Oct-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
Triplicate 1, Duplicate 1, TR5-01, TR5-02, TR5-03, TR5-04, TR5-05, TR6-01, TR6-02, TR6-03, TR6-04, TR6-05, TR6-06, TR6-07, TR6-08, TR6-09, TR6-10, TR6-11, TR6-SP1, L3-12.9.18, SWP01, SWP02, SWP03, SWP04, SWP05	**12-Sep-2018**	**17-Sep-2018**	26-Sep-2018	✓	**19-Sep-2018**	26-Sep-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
Triplicate 1, Duplicate 1, TR5-01, TR5-02, TR5-04, TR5-05, TR6-02, TR6-04, TR6-05, TR6-06, TR6-07, TR6-08, TR6-09, TR6-10, TR6-11, TR6-SP1	**12-Sep-2018**	**18-Sep-2018**	26-Sep-2018	✓	**18-Sep-2018**	28-Oct-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
L3-12.9.18, SWP01, SWP02, SWP03, SWP04, SWP05	**12-Sep-2018**	**19-Sep-2018**	26-Sep-2018	✓	**19-Sep-2018**	29-Oct-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
Triplicate 1, Duplicate 1, TR5-01, TR5-02, TR5-03, TR5-04, TR5-05, TR6-01, TR6-02, TR6-03, TR6-04, TR6-05, TR6-06, TR6-07, TR6-08, TR6-09, TR6-10, TR6-11, TR6-SP1, L3-12.9.18, SWP01, SWP02, SWP03, SWP04, SWP05	**12-Sep-2018**	**17-Sep-2018**	26-Sep-2018	✓	**19-Sep-2018**	26-Sep-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
Triplicate 1, Duplicate 1, TR5-01, TR5-02, TR5-04, TR5-05, TR6-02, TR6-04, TR6-05, TR6-06, TR6-07, TR6-08, TR6-09, TR6-10, TR6-11, TR6-SP1	**12-Sep-2018**	**18-Sep-2018**	26-Sep-2018	✓	**18-Sep-2018**	28-Oct-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
L3-12.9.18, SWP01, SWP02, SWP03, SWP04, SWP05	**12-Sep-2018**	**19-Sep-2018**	26-Sep-2018	✓	**19-Sep-2018**	29-Oct-2018	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
Triplicate 1, Duplicate 1, TR5-01, TR5-02, TR5-03, TR5-04, TR5-05, TR6-01, TR6-02, TR6-03, TR6-04, TR6-05, TR6-06, TR6-07, TR6-08, TR6-09, TR6-10, TR6-11, TR6-SP1, L3-12.9.18, SWP01, SWP02, SWP03, SWP04, SWP05	**12-Sep-2018**	**17-Sep-2018**	26-Sep-2018	✓	**19-Sep-2018**	26-Sep-2018	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
Trip blank	**12-Sep-2018**	**18-Sep-2018**	26-Sep-2018	✓	**19-Sep-2018**	26-Sep-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
Trip blank	**12-Sep-2018**	**18-Sep-2018**	26-Sep-2018	✓	**19-Sep-2018**	26-Sep-2018	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
Trip blank	**12-Sep-2018**	**18-Sep-2018**	26-Sep-2018	✓	**19-Sep-2018**	26-Sep-2018	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	5	40	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	35	11.43	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	35	5.71	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	35	5.71	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	35	5.71	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
TRH Volatiles/BTEX	EP080	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	SOIL	In house: Referenced to USEPA SW 846 - 8015A. Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1817751**	Page	: 1 of 11
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +6138549 9630
Project	: Oatlands DSI	Date Samples Received	: 02-Nov-2018
Order number	: 4193.005	Date Analysis Commenced	: 05-Nov-2018
C-O-C number	: ----	Issue Date	: 12-Nov-2018
Sampler	: FIONA KESERUE-PONTE		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 19		
No. of samples analysed	: 19		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Arenie Vijayaratnam	Non-metals prep supervisor	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2022907)									
EM1817748-001	Anonymous	EA055: Moisture Content	----	0.1	%	9.4	9.4	0.00	No Limit
EM1817751-011	L2-V1	EA055: Moisture Content	----	0.1	%	3.6	3.9	8.00	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 2019607)									
EM1817745-016	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	40	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	12	13.9	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	3	3	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	6	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	404	405	0.286	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	22	24	9.65	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	5	0.00	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EM1817751-007	TP18-01	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	50	40	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	13	11	20.8	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	17	15	10.7	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	23	20	11.8	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	70	70	0.00	0% - 50%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 2019607) - continued									
EM1817751-007	TP18-01	EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	468	455	2.98	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	57	54	5.04	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	30	30	0.00	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2019608)									
EM1817745-016	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1817751-007	TP18-01	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QC Lot: 2022959)									
EM1817751-002	Triplicate 1	EP071SG-S: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QC Lot: 2022959)									
EM1817751-002	Triplicate 1	EP071SG-S: >C16 - C34 Fraction	----	100	mg/kg	110	110	0.00	No Limit
		EP071SG-S: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2019631)									
EM1817691-041	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1817751-011	L2-V1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2022960)									
EM1817751-003	Duplicate	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1817751-016	L1-V1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2019631)									
EM1817691-041	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1817751-011	L2-V1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2022960)									
EM1817751-003	Duplicate	EP071: >C16 - C34 Fraction	----	100	mg/kg	110	<100	9.99	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	110	<50	75.0	No Limit
EM1817751-016	L1-V1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2022960) - continued									
EM1817751-016	L1-V1	EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 2019631)									
EM1817691-041	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1817751-011	L2-V1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 2024823)									
EM1817494-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.013	0.013	0.00	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.006	0.006	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.006	0.007	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.010	0.010	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EM1817720-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0013	0.0010	21.6	0% - 50%
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.050	0.051	2.08	0% - 20%
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.075	0.086	13.9	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.025	0.029	15.2	0% - 20%
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.419	0.420	0.250	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 2024823) - continued									
EM1817720-002	Anonymous	EG020A-T: Copper	7440-50-8	0.001	mg/L	0.043	0.045	3.46	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.040	0.041	2.62	0% - 20%
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.390	0.410	5.04	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	1.27	1.27	0.518	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	1.37	1.36	0.900	0% - 20%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	0.04	0.04	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2023076)									
EM1817702-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1817776-002	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2019480)									
EM1817758-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	110	120	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	60	70	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2022453)									
EM1817716-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1817716-011	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2019480)									
EM1817758-001	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	130	150	10.4	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2022453)									
EM1817716-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1817716-011	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2022453)									
EM1817716-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1817716-011	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 2022453) - continued									
EM1817716-011	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 2019607)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	92.8	78	107
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	84.4	76	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	98.5	84	113
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	103	84	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	86.8	76	108
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	90.1	78	110
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	92.4	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	87.4	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	87.7	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	92.5	81	110
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	92.6	80	109
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	97.1	92	110
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	89.2	78	106
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	93.1	79	110
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2019608)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	80.7	77	104
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 2022959)								
EP071SG-S: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	92.4	39	119
EP071SG-S: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	110	60	115
EP071SG-S: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	103	57	127
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 2022959)								
EP071SG-S: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	93.6	48	119
EP071SG-S: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	106	51	124
EP071SG-S: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	94.8	39	150
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2019631)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	96.2	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2022960)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	92.7	80	120
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	103	84	115
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	93.3	80	112
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2019631)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	94.4	68	125

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2022960)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	92.9	83	117
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	99.5	82	114
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	85.2	73	115
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN (QCLot: 2019631)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	92.1	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	98.9	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	105	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	103	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	103	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	91.2	66	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 2024823)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	100	90	110
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	96.5	88	113
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	101	88	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	86	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100	87	109
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	105	88	113
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	107	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.5	88	109
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	104	88	111
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	104	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	100	85	113
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	104	88	112
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	98.0	87	113
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	103	88	118
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2023076)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	91.8	76	115
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2019480)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	4331 µg/L	107	51	136
EP071: C15 - C28 Fraction	----	100	µg/L	<100	16952 µg/L	108	58	139
EP071: C29 - C36 Fraction	----	50	µg/L	<50	8695 µg/L	107	57	134
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2022453)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	100	68	125

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2019480)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	6292 µg/L	108	55	134
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	22143 µg/L	108	58	135
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1677 µg/L	113	57	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2022453)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	99.0	66	123
EP080: BTEXN (QCLot: 2022453)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	97.1	74	123
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	103	77	128
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	104	73	126
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	110	72	131
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	113	74	131
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	107	74	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 2019607)							
EM1817745-023	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	96.1	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	# Not Determined	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	102	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	94.7	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	97.7	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	98.2	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	97.0	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	104	68	136
		EG005T: Nickel	7440-02-0	50 mg/kg	96.3	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	87.3	71	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	108	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	95.2	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2019608)							
EM1817745-023	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	84.1	76	116
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 2022959)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 2022959) - continued							
EM1817751-005	TP17-01	EP071SG-S: C10 - C14 Fraction	----	806 mg/kg	74.9	56	110
		EP071SG-S: C15 - C28 Fraction	----	3006 mg/kg	97.8	57	107
		EP071SG-S: C29 - C36 Fraction	----	1584 mg/kg	91.2	62	112
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 2022959)							
EM1817751-005	TP17-01	EP071SG-S: >C10 - C16 Fraction	----	1160 mg/kg	77.0	57	109
		EP071SG-S: >C16 - C34 Fraction	----	3978 mg/kg	94.5	59	113
		EP071SG-S: >C34 - C40 Fraction	----	313 mg/kg	83.8	68	144
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2019631)							
EM1817751-002	Triplicate 1	EP080: C6 - C9 Fraction	----	28 mg/kg	90.9	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2022960)							
EM1817751-006	TP17-02	EP071: C10 - C14 Fraction	----	806 mg/kg	93.5	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	102	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	92.0	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2019631)							
EM1817751-002	Triplicate 1	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	87.3	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2022960)							
EM1817751-006	TP17-02	EP071: >C10 - C16 Fraction	----	1160 mg/kg	93.2	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	98.6	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	82.7	44	126
EP080: BTEXN (QCLot: 2019631)							
EM1817751-002	Triplicate 1	EP080: Benzene	71-43-2	2 mg/kg	118	50	136
		EP080: Toluene	108-88-3	2 mg/kg	123	56	139

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 2024823)							
EM1817494-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	95.0	82	118
		EG020A-T: Beryllium	7440-41-7	1 mg/L	94.2	79	121
		EG020A-T: Barium	7440-39-3	1 mg/L	92.4	80	114
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	92.1	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	90.2	80	118
		EG020A-T: Cobalt	7440-48-4	1 mg/L	94.6	82	120
		EG020A-T: Copper	7440-50-8	1 mg/L	96.4	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	85.2	83	121
		EG020A-T: Manganese	7439-96-5	1 mg/L	97.1	73	123
		EG020A-T: Nickel	7440-02-0	1 mg/L	99.5	80	118

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020T: Total Metals by ICP-MS (QCLot: 2024823) - continued							
EM1817494-001	Anonymous	EG020A-T: Vanadium	7440-62-2	1 mg/L	93.2	81	119
		EG020A-T: Zinc	7440-66-6	1 mg/L	93.1	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2023076)							
EM1817702-002	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	101	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2022453)							
EM1817716-002	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	80.3	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2022453)							
EM1817716-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	82.3	44	122
EP080: BTEXN (QCLot: 2022453)							
EM1817716-002	Anonymous	EP080: Benzene	71-43-2	20 µg/L	97.4	68	130
		EP080: Toluene	108-88-3	20 µg/L	99.9	72	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1817751**	Page	: 1 of 9
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Telephone	: +6138549 9630
Project	: Oatlands DSI	Date Samples Received	: 02-Nov-2018
Site	: ----	Issue Date	: 12-Nov-2018
Sampler	: FIONA KESERUE-PONTE	No. of samples received	: 19
Order number	: 4193.005	No. of samples analysed	: 19

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EM1817745--023	Anonymous	**Barium**	7440-39-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Matrix Spikes (MS)					
TRH - Semivolatile Fraction	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
Triplicate 1, Duplicate, TP17-01, TP17-02, TP18-01, TP18-02, TP19-01, TP19-02, L2-V1, L2-V2, L2-V3, L2-V4, L2-V5, L1-V1, L1-V2, L1-V3, L3-V1	**01-Nov-2018**	**----**	----	----	**07-Nov-2018**	15-Nov-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
Triplicate 1, TP17-01, TP17-02, TP18-01, TP18-02, TP19-01, TP19-02, L2-V1, L2-V2, L2-V3, L2-V4, L2-V5	**01-Nov-2018**	**07-Nov-2018**	30-Apr-2019	✓	**08-Nov-2018**	30-Apr-2019	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
Triplicate 1, TP17-01, TP17-02, TP18-01, TP18-02, TP19-01, TP19-02, L2-V1, L2-V2, L2-V3, L2-V4, L2-V5	**01-Nov-2018**	**07-Nov-2018**	29-Nov-2018	✓	**08-Nov-2018**	29-Nov-2018	✓
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup							
Soil Glass Jar - Unpreserved (EP071SG-S)							
Triplicate 1, TP17-01, TP19-02	**01-Nov-2018**	**07-Nov-2018**	15-Nov-2018	✓	**07-Nov-2018**	17-Dec-2018	✓
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup							
Soil Glass Jar - Unpreserved (EP071SG-S)							
Triplicate 1, TP17-01, TP19-02	**01-Nov-2018**	**07-Nov-2018**	15-Nov-2018	✓	**07-Nov-2018**	17-Dec-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
Triplicate 1, Duplicate, TP17-01, TP17-02, TP18-01, TP18-02, TP19-01, TP19-02, L2-V1, L2-V2, L2-V3, L2-V4, L2-V5, L1-V1, L1-V2, L1-V3, L3-V1	**01-Nov-2018**	**05-Nov-2018**	15-Nov-2018	✓	**07-Nov-2018**	15-Nov-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
Duplicate, TP17-02, TP18-01, TP18-02, TP19-01, L2-V1, L2-V2, L2-V3, L2-V4, L2-V5, L1-V1, L1-V2, L1-V3, L3-V1	**01-Nov-2018**	**07-Nov-2018**	15-Nov-2018	✓	**07-Nov-2018**	17-Dec-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
Triplicate 1, Duplicate, TP17-01, TP17-02, TP18-01, TP18-02, TP19-01, TP19-02, L2-V1, L2-V2, L2-V3, L2-V4, L2-V5, L1-V1, L1-V2, L1-V3, L3-V1	**01-Nov-2018**	**05-Nov-2018**	15-Nov-2018	✓	**07-Nov-2018**	15-Nov-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
Duplicate, TP17-02, TP18-01, TP18-02, TP19-01, L2-V1, L2-V2, L2-V3, L2-V4, L2-V5, L1-V1, L1-V2, L1-V3, L3-V1	**01-Nov-2018**	**07-Nov-2018**	15-Nov-2018	✓	**07-Nov-2018**	17-Dec-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
Triplicate 1, Duplicate, TP17-01, TP17-02, TP18-01, TP18-02, TP19-01, TP19-02, L2-V1, L2-V2, L2-V3, L2-V4, L2-V5, L1-V1, L1-V2, L1-V3, L3-V1	**01-Nov-2018**	**05-Nov-2018**	15-Nov-2018	✓	**07-Nov-2018**	15-Nov-2018	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG020A-T)							
Rinsate - bucket	**01-Nov-2018**	**08-Nov-2018**	30-Apr-2019	✓	**08-Nov-2018**	30-Apr-2019	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)							
Rinsate - bucket	**01-Nov-2018**	**----**	----	----	**07-Nov-2018**	29-Nov-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
Rinsate - bucket	**01-Nov-2018**	**05-Nov-2018**	08-Nov-2018	✓	**07-Nov-2018**	15-Dec-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
Trip blank, Rinsate - bucket	**01-Nov-2018**	**07-Nov-2018**	15-Nov-2018	✓	**08-Nov-2018**	15-Nov-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
Rinsate - bucket	**01-Nov-2018**	**05-Nov-2018**	08-Nov-2018	✓	**07-Nov-2018**	15-Dec-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
Trip blank, Rinsate - bucket	**01-Nov-2018**	**07-Nov-2018**	15-Nov-2018	✓	**08-Nov-2018**	15-Nov-2018	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
Trip blank, Rinsate - bucket	**01-Nov-2018**	**07-Nov-2018**	15-Nov-2018	✓	**08-Nov-2018**	15-Nov-2018	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	9	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	SOIL	In house: Referenced to USEPA SW 846 - 8015A. Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1818265**	Page	: 1 of 5
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +6138549 9630
Project	: Oatlands DSI	Date Samples Received	: 02-Nov-2018
Order number	: 4193.005	Date Analysis Commenced	: 14-Nov-2018
C-O-C number	: ----	Issue Date	: 16-Nov-2018
Sampler	: ----		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 1		
No. of samples analysed	: 1		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005C: Leachable Metals by ICPAES (QC Lot: 2038532)									
EM1817994-026	Anonymous	EG005C: Beryllium	7440-41-7	0.05	mg/L	<0.05	<0.05	0.00	No Limit
		EG005C: Cadmium	7440-43-9	0.05	mg/L	<0.05	<0.05	0.00	No Limit
		EG005C: Selenium	7782-49-2	0.05	mg/L	<0.05	<0.05	0.00	No Limit
		EG005C: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Barium	7440-39-3	0.1	mg/L	0.4	0.4	0.00	No Limit
		EG005C: Boron	7440-42-8	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Chromium	7440-47-3	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Cobalt	7440-48-4	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Copper	7440-50-8	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Manganese	7439-96-5	0.1	mg/L	0.8	0.8	0.00	No Limit
		EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Vanadium	7440-62-2	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Zinc	7440-66-6	0.1	mg/L	<0.1	<0.1	0.00	No Limit
EM1817994-035	Anonymous	EG005C: Beryllium	7440-41-7	0.05	mg/L	<0.05	<0.05	0.00	No Limit
		EG005C: Cadmium	7440-43-9	0.05	mg/L	<0.05	<0.05	0.00	No Limit
		EG005C: Selenium	7782-49-2	0.05	mg/L	<0.05	<0.05	0.00	No Limit
		EG005C: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Barium	7440-39-3	0.1	mg/L	0.7	0.7	0.00	No Limit
		EG005C: Boron	7440-42-8	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Chromium	7440-47-3	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Cobalt	7440-48-4	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Copper	7440-50-8	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Manganese	7439-96-5	0.1	mg/L	0.6	0.5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005C: Leachable Metals by ICPAES (QC Lot: 2038532) - continued									
EM1817994-035	Anonymous	EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Vanadium	7440-62-2	0.1	mg/L	<0.1	<0.1	0.00	No Limit
		EG005C: Zinc	7440-66-6	0.1	mg/L	<0.1	<0.1	0.00	No Limit
EG035C: Leachable Mercury by FIMS (QC Lot: 2039018)									
EM1817994-026	Anonymous	EG035C: Mercury	7439-97-6	0.0001	mg/L	<0.0010	<0.0010	0.00	No Limit
EM1817994-035	Anonymous	EG035C: Mercury	7439-97-6	0.0001	mg/L	<0.0010	<0.0010	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005C: Leachable Metals by ICPAES (QCLot: 2038532)								
EG005C: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	102	89	119
EG005C: Barium	7440-39-3	0.1	mg/L	<0.1	1 mg/L	93.2	85	112
EG005C: Beryllium	7440-41-7	0.05	mg/L	<0.05	1 mg/L	102	90	120
EG005C: Boron	7440-42-8	0.1	mg/L	<0.1	----	----	----	----
EG005C: Cadmium	7440-43-9	0.05	mg/L	<0.05	1 mg/L	98.0	88	116
EG005C: Chromium	7440-47-3	0.1	mg/L	<0.1	1 mg/L	94.0	87	111
EG005C: Cobalt	7440-48-4	0.1	mg/L	<0.1	1 mg/L	94.7	86	112
EG005C: Copper	7440-50-8	0.1	mg/L	<0.1	1 mg/L	94.0	88	115
EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	1 mg/L	98.5	88	113
EG005C: Manganese	7439-96-5	0.1	mg/L	<0.1	1 mg/L	93.9	88	114
EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	1 mg/L	95.2	86	111
EG005C: Selenium	7782-49-2	0.05	mg/L	<0.05	1 mg/L	97.5	84	115
EG005C: Vanadium	7440-62-2	0.1	mg/L	<0.1	1 mg/L	93.2	86	111
EG005C: Zinc	7440-66-6	0.1	mg/L	<0.1	1 mg/L	99.8	87	114
EG035C: Leachable Mercury by FIMS (QCLot: 2039018)								
EG035C: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	99.9	77	115
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2038394)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	84.0	48	110
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	93.9	50	117
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	86.2	53	117
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	89.6	54	118
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	92.0	59	119
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	92.2	51	113
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	93.4	61	120
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	94.1	56	120
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	90.4	53	120
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	86.3	57	122
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	106	56	131
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	106	59	124
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	105	54	124
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	91.1	55	124
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	91.2	54	124
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	92.0	56	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005C: Leachable Metals by ICPAES (QCLot: 2038532)							
EM1817994-027	Anonymous	EG005C: Arsenic	7440-38-2	1 mg/L	108	88	124
		EG005C: Barium	7440-39-3	1 mg/L	93.4	87	119
		EG005C: Beryllium	7440-41-7	1 mg/L	105	90	122
		EG005C: Cadmium	7440-43-9	1 mg/L	96.0	89	115
		EG005C: Chromium	7440-47-3	1 mg/L	93.2	89	115
		EG005C: Cobalt	7440-48-4	1 mg/L	92.7	87	117
		EG005C: Copper	7440-50-8	1 mg/L	98.6	91	121
		EG005C: Lead	7439-92-1	1 mg/L	97.6	86	118
		EG005C: Manganese	7439-96-5	1 mg/L	93.9	85	119
		EG005C: Nickel	7440-02-0	1 mg/L	93.1	88	116
		EG005C: Selenium	7782-49-2	1 mg/L	103	86	124
		EG005C: Vanadium	7440-62-2	1 mg/L	94.2	88	116
		EG005C: Zinc	7440-66-6	1 mg/L	98.7	85	123
EG035C: Leachable Mercury by FIMS (QCLot: 2039018)							
EM1817994-027	Anonymous	EG035C: Mercury	7439-97-6	0.01 mg/L	92.7	84	118

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1818265**	Page	: 1 of 4
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Telephone	: +6138549 9630
Project	: Oatlands DSI	Date Samples Received	: 02-Nov-2018
Site	: ----	Issue Date	: 16-Nov-2018
Sampler	: ----	No. of samples received	: 1
Order number	: 4193.005	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	12	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	12	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EN33: TCLP Leach							
Non-Volatile Leach: 14 day HT(e.g. SV organics) (EN33a)							
TP17-01	**01-Nov-2018**	**14-Nov-2018**	15-Nov-2018	✓	**----**	----	----

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EG005C: Leachable Metals by ICPAES							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG005C)							
TP17-01	**14-Nov-2018**	**15-Nov-2018**	13-May-2019	✓	**15-Nov-2018**	13-May-2019	✓
EG035C: Leachable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035C)							
TP17-01	**14-Nov-2018**	**----**	----	----	**15-Nov-2018**	12-Dec-2018	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
TP17-01	**14-Nov-2018**	**15-Nov-2018**	21-Nov-2018	✓	**15-Nov-2018**	25-Dec-2018	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Leachable Mercury by FIMS	EG035C	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	12	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Leachable Mercury by FIMS	EG035C	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Leachable Mercury by FIMS	EG035C	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Leachable Mercury by FIMS	EG035C	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Leachable Metals by ICPAES	EG005C	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	12	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Leachable Metals by ICPAES	EG005C	SOIL	In house: referenced to APHA 3120; USEPA SW 846 - 6010: The ICPAES technique ionises leachate sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3)
Leachable Mercury by FIMS	EG035C	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the TCLP solution. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals in TCLP Leachate	EN25C	SOIL	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
TCLP for Non & Semivolatile Analytes	EN33a	SOIL	In house QWI-EN/33 referenced to USEPA SW846-1311: The TCLP procedure is designed to determine the mobility of both organic and inorganic analytes present in wastes. The standard TCLP leach is for non-volatile and Semivolatile test parameters.
Separatory Funnel Extraction of Liquids	ORG14	SOIL	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.

QUALITY CONTROL REPORT

Work Order	: **EM1820652**	Page	: 1 of 7
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +6138549 9630
Project	: Oatlands DSI	Date Samples Received	: 20-Dec-2018
Order number	: 4193.005	Date Analysis Commenced	: 21-Dec-2018
C-O-C number	: ----	Issue Date	: 08-Jan-2019
Sampler	: FIONA KESERUE-PONTE		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 20		
No. of samples analysed	: 20		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2109411)									
EM1820639-002	Anonymous	EA055: Moisture Content	----	0.1	%	18.9	17.4	8.26	0% - 50%
EM1820651-003	Anonymous	EA055: Moisture Content	----	0.1	%	13.3	13.3	0.00	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2109414)									
EM1820652-004	MR02	EA055: Moisture Content	----	0.1	%	4.2	3.4	20.2	No Limit
EM1820652-014	MR12	EA055: Moisture Content	----	0.1	%	12.6	12.6	0.00	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 2118733)									
EM1820645-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	50	70	45.1	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	17	16	10.7	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	4	4	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	8	8	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	9	9	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	17	16	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	120	144	18.6	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	26	23	10.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	29	33	11.2	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EM1820652-007	MR05	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	80	80	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	7	26.7	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 2118733) - continued									
EM1820652-007	MR05	EG005T: Cobalt	7440-48-4	2	mg/kg	6	5	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	8	6	31.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	22	17	24.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	129	120	7.76	0% - 20%
		EG005T: Manganese	7439-96-5	5	mg/kg	273	291	6.26	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	18	26	33.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	110	117	5.47	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 2118735)									
EM1820652-018	MS02	EG005T: Zinc	7440-66-6	5	mg/kg	1020	# 1460	36.0	0% - 20%
EM1820652-018	MS02	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	3	<1	104	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	660	570	14.1	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	16	10	44.9	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	8	10	14.7	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	19	16	17.8	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	14	78.9	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	102	112	9.19	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	2550	2350	7.92	0% - 20%
		EG005T: Manganese	7439-96-5	5	mg/kg	342	362	5.79	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	22	19	14.1	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2118734)									
EM1820645-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1820652-007	MR05	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.3	0.3	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2118736)									
EM1820652-018	MS02	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2109570)									
EM1820652-001	Trip 1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2109570) - continued									
EM1820652-001	Trip 1	EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1820652-011	MR09	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 2118733)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	82.9	78	107
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	97.8	76	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	103	84	113
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	98.0	84	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	92.2	76	108
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	97.8	78	110
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	97.3	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	87.8	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	93.4	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	97.0	81	110
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	101	80	109
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	99.2	92	110
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	93.5	78	106
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	92.2	79	110
EG005T: Total Metals by ICP-AES (QCLot: 2118735)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	80.0	78	107
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	83.8	76	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	97.2	84	113
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	101	84	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	88.8	76	108
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	85.5	78	110
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	88.2	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	88.1	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	87.7	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	91.0	81	110
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	92.6	80	109
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	100.0	92	110
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	88.3	78	106
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	92.0	79	110
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2118734)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	93.4	77	104
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2118736)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	93.0	77	104
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2109570)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2109570) - continued								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	108	77	129
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	107	74	130
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	107	78	129
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	104	78	128
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	109	83	130
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	3 mg/kg	114	76	129
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	112	79	134
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	113	84	135
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	110	72	125
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	114	76	135
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	104	69	123
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	111	77	131
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	103	65	116
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	97.9	65	124
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	100	66	127
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	92.6	65	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 2118733)							
EM1820649-001	Anonymous	EG005T: Cadmium	7440-43-9	50 mg/kg	101	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	# Not Determined	79	121
EM1820649-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	84.8	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	90.1	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	109	85	125
		EG005T: Copper	7440-50-8	50 mg/kg	90.4	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	83.0	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	94.9	68	136
		EG005T: Nickel	7440-02-0	50 mg/kg	96.8	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	77.0	71	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	114	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	90.1	74	128

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 2118735)							
EM1820652-019	MS03	EG005T: Barium	7440-39-3	50 mg/kg	# Not Determined	71	135
		EG005T: Copper	7440-50-8	50 mg/kg	# Not Determined	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	# Not Determined	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	# Not Determined	68	136
		EG005T: Zinc	7440-66-6	50 mg/kg	# Not Determined	74	128
EM1820652-019	MS03	EG005T: Arsenic	7440-38-2	50 mg/kg	95.6	78	124
		EG005T: Beryllium	7440-41-7	50 mg/kg	110	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	103	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	79.8	79	121
		EG005T: Nickel	7440-02-0	50 mg/kg	102	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	99.8	71	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	99.2	76	124
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2118734)							
EM1820649-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	85.5	76	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2118736)							
EM1820652-019	MS03	EG035T: Mercury	7439-97-6	5 mg/kg	90.0	76	116
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2109570)							
EM1820652-002	Dup	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	102	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	129	52	148

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1820652**	Page	: 1 of 6
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Telephone	: +6138549 9630
Project	: Oatlands DSI	Date Samples Received	: 20-Dec-2018
Site	: ----	Issue Date	: 08-Jan-2019
Sampler	: FIONA KESERUE-PONTE	No. of samples received	: 20
Order number	: 4193.005	No. of samples analysed	: 20

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005T: Total Metals by ICP-AES	EM1820652--018	MS02	**Zinc**	7440-66-6	36.0 %	0% - 20%	**RPD exceeds LOR based limits**
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EM1820652--019	MS03	**Barium**	7440-39-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005T: Total Metals by ICP-AES	EM1820649--001	Anonymous	**Chromium**	7440-47-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005T: Total Metals by ICP-AES	EM1820652--019	MS03	**Copper**	7440-50-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005T: Total Metals by ICP-AES	EM1820652--019	MS03	**Lead**	7439-92-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005T: Total Metals by ICP-AES	EM1820652--019	MS03	**Manganese**	7439-96-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005T: Total Metals by ICP-AES	EM1820652--019	MS03	**Zinc**	7440-66-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
Trip 1,	Dup,	**18-Dec-2018**	**----**	----	----	**21-Dec-2018**	01-Jan-2019	✓
MR01,	MR02,							
MR03,	MR04,							
MR05,	MR06,							
MR07,	MR08,							
MR09,	MR10,							
MR11,	MR12,							
MR13,	MR14,							
MS01,	MS02,							
MS03,	MS04							
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
Trip 1,	Dup,	**18-Dec-2018**	**02-Jan-2019**	16-Jun-2019	✓	**02-Jan-2019**	16-Jun-2019	✓
MR01,	MR02,							
MR03,	MR04,							
MR05,	MR06,							
MR07,	MR08,							
MR09,	MR10,							
MR11,	MR12,							
MR13,	MR14,							
MS01,	MS02,							
MS03,	MS04							
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
Trip 1,	Dup,	**18-Dec-2018**	**02-Jan-2019**	15-Jan-2019	✓	**03-Jan-2019**	15-Jan-2019	✓
MR01,	MR02,							
MR03,	MR04,							
MR05,	MR06,							
MR07,	MR08,							
MR09,	MR10,							
MR11,	MR12,							
MR13,	MR14,							
MS01,	MS02,							
MS03,	MS04							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
Trip 1,	Dup,	**18-Dec-2018**	**27-Dec-2018**	01-Jan-2019	✓	**28-Dec-2018**	05-Feb-2019	✓
MR01,	MR02,							
MR03,	MR04,							
MR05,	MR06,							
MR07,	MR08,							
MR09,	MR10,							
MR11,	MR12,							
MR13,	MR14,							
MS01,	MS02,							
MS03,	MS04							

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	25	**12.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	27	**14.81**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	27	**14.81**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

QUALITY CONTROL REPORT

Work Order	: **EM1900118**	Page	: 1 of 3
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +6138549 9630
Project	: Oatlands DSI	Date Samples Received	: 20-Dec-2018
Order number	: 4193.005	Date Analysis Commenced	: 14-Jan-2019
C-O-C number	: ----	Issue Date	: 15-Jan-2019
Sampler	: ----		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005C: Leachable Metals by ICPAES (QC Lot: 2136393)									
EM1900118-002	Dup	EG005C: Lead	7439-92-1	0.1	mg/L	0.4	0.4	0.00	No Limit
EM1900165-002	Anonymous	EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005C: Leachable Metals by ICPAES (QCLot: 2136393)								
EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	1 mg/L	102	88	113

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005C: Leachable Metals by ICPAES (QCLot: 2136393)							
EM1900118-018	MS02	EG005C: Lead	7439-92-1	1 mg/L	96.5	86	118

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1900118**	Page	: 1 of 4
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Telephone	: +6138549 9630
Project	: Oatlands DSI	Date Samples Received	: 20-Dec-2018
Site	: ----	Issue Date	: 15-Jan-2019
Sampler	: ----	No. of samples received	: 3
Order number	: 4193.005	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EN33: TCLP Leach							
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a)							
Dup, MS02, MS03	**18-Dec-2018**	**14-Jan-2019**	16-Jun-2019	✓	**----**	----	----

Matrix: **WATER** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005C: Leachable Metals by ICPAES							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG005C)							
Dup, MS02, MS03	**14-Jan-2019**	**15-Jan-2019**	13-Jul-2019	✓	**15-Jan-2019**	13-Jul-2019	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Leachable Metals by ICPAES	EG005C	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Leachable Metals by ICPAES	EG005C	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Leachable Metals by ICPAES	EG005C	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Leachable Metals by ICPAES	EG005C	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Leachable Metals by ICPAES	EG005C	SOIL	In house: referenced to APHA 3120; USEPA SW 846 - 6010: The ICPAES technique ionises leachate sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals in TCLP Leachate	EN25C	SOIL	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
TCLP for Non & Semivolatile Analytes	EN33a	SOIL	In house QWI-EN/33 referenced to USEPA SW846-1311: The TCLP procedure is designed to determine the mobility of both organic and inorganic analytes present in wastes. The standard TCLP leach is for non-volatile and Semivolatile test parameters.

QUALITY CONTROL REPORT

Work Order	: **EM1901520**	Page	: 1 of 3
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +6138549 9630
Project	: Oatlands DSI	Date Samples Received	: 20-Dec-2018
Order number	: 4193.005	Date Analysis Commenced	: 07-Feb-2019
C-O-C number	: ----	Issue Date	: 11-Feb-2019
Sampler	: ----		
Site	: ----		
Quote number	: ME/463/17		
No. of samples received	: 6		
No. of samples analysed	: 1		

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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005C: Leachable Metals by ICPAES (QC Lot: 2175546)									
EM1901519-001	Anonymous	EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.00	No Limit
EM1901570-040	Anonymous	EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005C: Leachable Metals by ICPAES (QCLot: 2175546)								
EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	1 mg/L	91.9	88	113

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005C: Leachable Metals by ICPAES (QCLot: 2175546)							
EM1901519-002	Anonymous	EG005C: Lead	7439-92-1	1 mg/L	88.2	86	118

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1901520**	Page	: 1 of 4
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Telephone	: +6138549 9630
Project	: Oatlands DSI	Date Samples Received	: 20-Dec-2018
Site	: ----	Issue Date	: 11-Feb-2019
Sampler	: ----	No. of samples received	: 6
Order number	: 4193.005	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EN33: TCLP Leach							
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a)							
Composite	**18-Dec-2018**	**07-Feb-2019**	16-Jun-2019	✓	**----**	----	----

Matrix: **WATER** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005C: Leachable Metals by ICPAES							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG005C)							
Composite	**07-Feb-2019**	**08-Feb-2019**	06-Aug-2019	✓	**08-Feb-2019**	06-Aug-2019	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Leachable Metals by ICPAES	EG005C	2	3	**66.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Leachable Metals by ICPAES	EG005C	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Leachable Metals by ICPAES	EG005C	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Leachable Metals by ICPAES	EG005C	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Leachable Metals by ICPAES	EG005C	SOIL	In house: referenced to APHA 3120; USEPA SW 846 - 6010: The ICPAES technique ionises leachate sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Sample Compositing	EN020	SOIL	Equal weights of each original soil are taken, then mixed and homogenised. The combined mixture is labelled as a new sample.
Digestion for Total Recoverable Metals in TCLP Leachate	EN25C	SOIL	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
TCLP for Non & Semivolatile Analytes	EN33a	SOIL	In house QWI-EN/33 referenced to USEPA SW846-1311: The TCLP procedure is designed to determine the mobility of both organic and inorganic analytes present in wastes. The standard TCLP leach is for non-volatile and Semivolatile test parameters.

QUALITY CONTROL REPORT

Work Order	: **EM1907330**	Page	: 1 of 7
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Contact	: Shirley LeCornu
Address	: 5, 40 MOLLE STREET HOBART TAS, AUSTRALIA 7001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6212 4400	Telephone	: +6138549 9630
Project	: Oatlands DSI	Date Samples Received	: 15-May-2019
Order number	: 4193.005	Date Analysis Commenced	: 17-May-2019
C-O-C number	: ----	Issue Date	: 23-May-2019
Sampler	: FKP		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 7		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

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Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
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Laboratory Duplicate (DUP) Report

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Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2353694)									
EM1907328-003	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	120	120	0.00	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	22	21	0.00	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	5	5	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	9	9	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	39	38	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	62	64	2.74	0% - 50%
		EG005T: Manganese	7439-96-5	5	mg/kg	118	111	6.16	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	24	24	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	328	331	1.11	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EM1907340-002	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	70	80	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	9	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	6	7	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	8	8	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	15	16	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	20	20	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	147	160	8.53	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2353694) - continued									
EM1907340-002	Anonymous	EG005T: Vanadium	7440-62-2	5	mg/kg	150	166	10.0	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	40	50	21.3	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2356372)									
EM1907329-008	Anonymous	EA055: Moisture Content	----	0.1	%	6.7	6.2	7.61	No Limit
EM1907340-001	Anonymous	EA055: Moisture Content	----	0.1	%	21.8	21.6	0.498	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2353695)									
EM1907328-003	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1907340-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 2355801)									
EM1907317-003	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EM1907343-003	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0523	0.0537	2.68	0% - 20%
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.034	0.035	0.00	0% - 20%
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.020	0.020	0.00	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.006	0.006	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.060	0.061	2.36	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.673	0.685	1.79	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.247	0.252	1.77	0% - 20%
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	5.08	5.22	2.73	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.054	0.054	0.00	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	23.7	24.4	3.09	0% - 20%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 2355801) - continued									
EM1907343-003	Anonymous	EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2352399)									
EM1907183-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1907283-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2353694)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	96.2	78	107
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	94.3	76	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	100	84	113
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	110	84	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	87.8	76	108
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	88.4	78	110
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	90.9	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	93.6	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	89.8	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	96.0	81	110
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	94.2	80	109
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	102	92	110
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	90.2	78	106
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	95.2	79	110
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2353695)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	93.8	77	104

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 2355801)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	90	110
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	90.7	88	113
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	96.3	88	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.8	86	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.5	87	109
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	98.4	88	113
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.4	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	100.0	88	109
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	101	88	111
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	99.0	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	100	85	113
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	102	88	112
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	98.2	87	113
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	102	88	118

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2352399)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	97.3	76	115

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2353694)							
EM1907330-001	OPVal01	EG005T: Cadmium	7440-43-9	50 mg/kg	# 83.8	84	116
EM1907330-001	OPVal01	EG005T: Arsenic	7440-38-2	50 mg/kg	88.3	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	129	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	91.9	85	125
		EG005T: Chromium	7440-47-3	50 mg/kg	87.5	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	90.4	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	102	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	# Not Determined	68	136
		EG005T: Nickel	7440-02-0	50 mg/kg	83.3	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	73.6	71	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	105	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	# Not Determined	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2353695)							
EM1907330-001	OPVal01	EG035T: Mercury	7439-97-6	0.5 mg/kg	87.5	76	116

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 2355801)							
EM1907317-003	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	98.2	82	118
		EG020A-T: Beryllium	7440-41-7	1 mg/L	95.7	79	121
		EG020A-T: Barium	7440-39-3	1 mg/L	98.2	80	114
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	102	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	106	80	118
		EG020A-T: Cobalt	7440-48-4	1 mg/L	104	82	120
		EG020A-T: Copper	7440-50-8	1 mg/L	101	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	102	83	121

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020T: Total Metals by ICP-MS (QCLot: 2355801) - continued							
EM1907317-003	Anonymous	EG020A-T: Manganese	7439-96-5	1 mg/L	106	73	123
		EG020A-T: Nickel	7440-02-0	1 mg/L	101	80	118
		EG020A-T: Vanadium	7440-62-2	1 mg/L	105	81	119
		EG020A-T: Zinc	7440-66-6	1 mg/L	98.9	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2352399)							
EM1907210-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	94.4	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1907330**	Page	: 1 of 5
Client	: **COVA THINKING PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS FIONA KESERUE-PONTE	Telephone	: +6138549 9630
Project	: Oatlands DSI	Date Samples Received	: 15-May-2019
Site	: ----	Issue Date	: 23-May-2019
Sampler	: FKP	No. of samples received	: 7
Order number	: 4193.005	No. of samples analysed	: 7

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG005(ED093)T: Total Metals by ICP-AES	EM1907330--001	OPVal01	**Cadmium**	7440-43-9	83.8 %	84-116%	**Recovery less than lower data quality objective**
EG005(ED093)T: Total Metals by ICP-AES	EM1907330--001	OPVal01	**Manganese**	7439-96-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005(ED093)T: Total Metals by ICP-AES	EM1907330--001	OPVal01	**Zinc**	7440-66-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
OPVal01, OPVal02, OPVal03, OPVal04, OPVal05, Dup	**14-May-2019**	**----**	----	----	**20-May-2019**	28-May-2019	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
OPVal01, OPVal02, OPVal03, OPVal04, OPVal05, Dup	**14-May-2019**	**18-May-2019**	10-Nov-2019	✓	**19-May-2019**	10-Nov-2019	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
OPVal01, OPVal02, OPVal03, OPVal04, OPVal05, Dup	**14-May-2019**	**18-May-2019**	11-Jun-2019	✓	**18-May-2019**	11-Jun-2019	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG020A-T)							
Rinsate	**14-May-2019**	**20-May-2019**	10-Nov-2019	✓	**20-May-2019**	10-Nov-2019	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)							
Rinsate	**14-May-2019**	**----**	----	----	**17-May-2019**	11-Jun-2019	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)